

THE ARCHITECTURAL JOURNAL

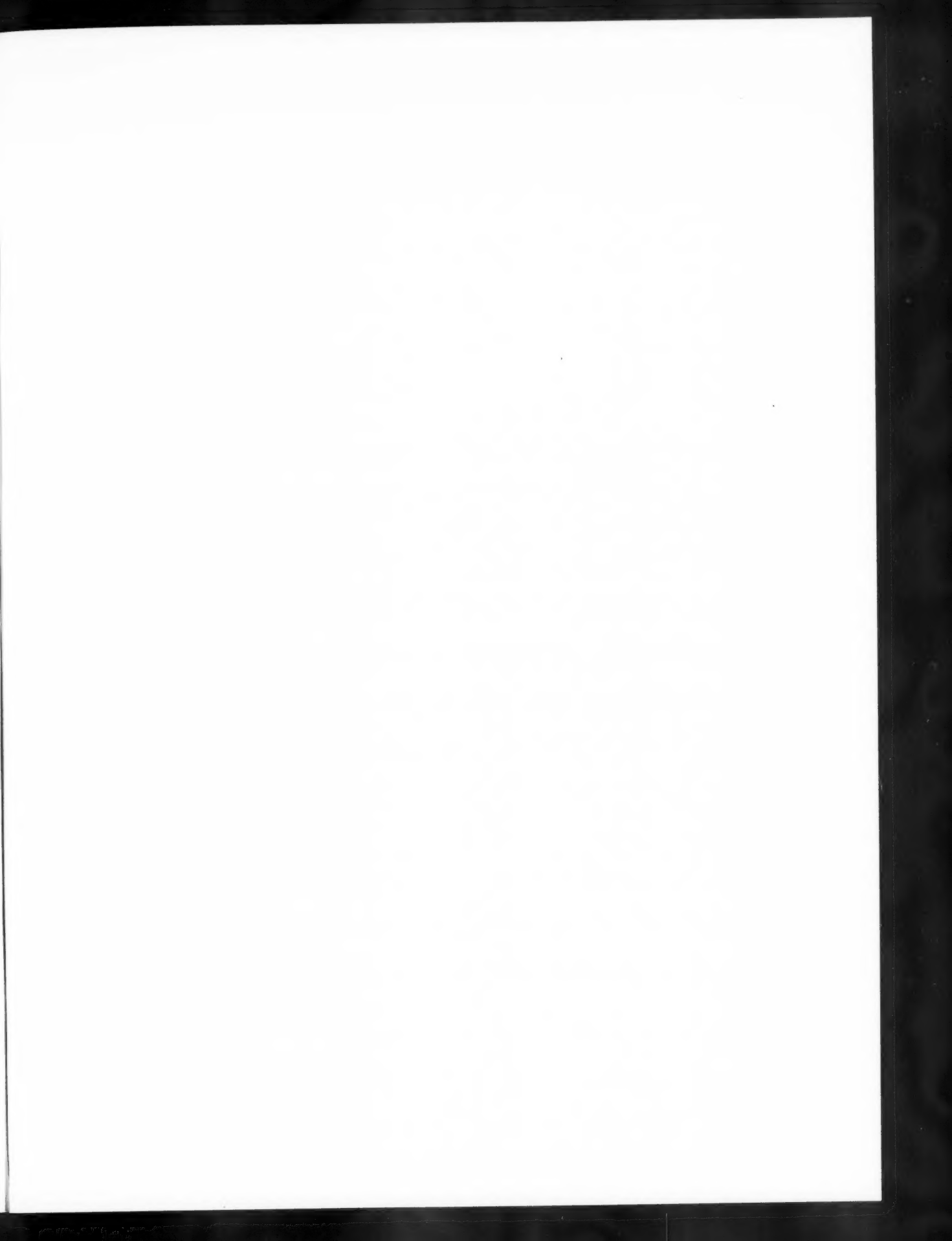
BEING THE JOURNAL OF

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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From a recent Photograph.

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JOHN MACVICAR ANDERSON,
PRESIDENT 1891-94.

John Macvicar Anderson

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OF

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

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JOURNAL

OF

THE ROYAL INSTITUTE OF BRITISH ARCHITECTS

SESSION 1895-96.

THE OPENING ADDRESS. Delivered by the President, FRANCIS C. PENROSE, F.R.S.,
at the First General Meeting, Monday, 4th November 1895.

COLLEAGUES AND GENTLEMEN,—



SINCE the delivery of my first Address from this Chair, just a year ago, we have recorded the loss by death of no fewer than seventeen Fellows, all men who had made some mark in the profession, while a few were highly distinguished—personal friends of long standing to many here and to myself. Ewan Christian, a predecessor of mine in the Chair of the Institute, had been a member fifty-five years, ten of which he passed as Associate. My friend St. Aubyn, who spent the last years of his life at Marazion, in sight of the famous St. Michael's Mount with which his family name was connected, was elected an Associate three years earlier, in 1837; and Henry Clutton, whom we have known as the Clutton of Hartswood, became an Associate in 1838. These three men, who have now joined the majority, may be said to have been identified with the Institute during the whole course of its corporate existence; and, certainly, we could wish for no worthier representatives than they showed themselves during that relatively long period. There is one other name I would mention, that of Paley, whose residence at Lancaster prevented his many friends in London from meeting him as often as they desired. We have also lost two of our Examiners, Ernest Turner and Harry Drinkwater, both of whom devoted themselves to the work—by no means light or easy—which devolves upon those members of the Board who set the papers and conduct the Examinations qualifying for candidature as Associate.

We have also to deplore the decease of seven Associates, one of whom, Gordon M. Hills, elected in 1858, was an archaeologist of repute; while to another, Herbert Gribble, is due that important work of architecture, the Oratory at Brompton. From among the Hon. Associates, Alfred White, who had been a member from the foundation of the class, and who will be remembered as having at an earlier period taken an active part in the work of the Society of Antiquaries, is gone.

Dr. Reichensperger, of Cologne, who had been thirty-one years a Corresponding Member, and Richard Morris Hunt, of New York, who was the first citizen of the United States to

receive the Royal Gold Medal, are both lost to us; and to lose men of the kind is a far greater loss than many of us, in the hurry of life, are perhaps aware of, for, among our half-hundred of Correspondents, none were more friendly to this country and to British architects than they were. Reichensperger, from his place in the German Parliament, invariably held up to notice and praised our free English custom and methods in architecture and the arts: he was an enthusiastic Goth, if I may be permitted the expression, and was one of the Jury in the great international competition for Lille Cathedral, high place in which was awarded to Englishmen. Hunt's speech in acknowledgment of the Queen's gift, made in this room little more than two years ago, is still fresh in our memory; and I may take this opportunity of stating that in the choice the Institute then made of Richard Morris Hunt as representative of the United States, we chose the very man whom his architect fellow-citizens would have chosen had they been asked, and whom they delighted to honour and see honoured.

I hope that the time spent over the mournful prologue with which I have been compelled to open my remarks will not be considered excessive, for I have much to say, which may be divided under two main heads: (1) the treatment of architects by the public, and (2) the relations and services of the Institute to the profession and the public. Before, however, proceeding with these principal points of my Address, I wish to be allowed to glance briefly at some of the events of the last twelve months which concern ourselves and our work.

With the current year there came into force a new Building Act for London, and a Tribunal of Appeal to which contested questions under the Act are submitted; and I venture to see in the establishment of the Tribunal the germ of powers very much higher and more extended than those yet accorded to the new Council of Three. One of my predecessors in this Chair, Mr. Waterhouse, said in 1889, just six years ago, that "A special Tribunal for the consideration and settlement of building cases" was required; and if we have not obtained quite all that he then wanted, we have at least the beginning of it. The current year also witnessed at its commencement an important development in our Examination system. From the 1st January 1895 every fresh applicant for admission to the class of Associates has to ascend three stages of progression before he can pass as qualified for candidature. He has first to be admitted a Probationer, then a Student, then a Candidate; and this requires a minimum period of five years to accomplish. True, there are special facilities for architects in practice and chief assistants to enter for the single Final Examination, but, for all youths entering the profession, the three grades must be successfully attained before an applicant can submit himself for election as Associate. The current year has also witnessed a revival of the Architects' Registration Bill, which was read a first time in the House of Commons that has recently passed away. Its attempted passage through Parliament was opposed by the Royal Institute of British Architects, involving an expenditure of labour and of money which the Institute is ill prepared to meet, and we were ably assisted in our opposition by the Architectural Association and the Art-Workers' Guild; but none of the Royal Academies of Arts in the United Kingdom appear to have acted in defence of their architect-members menaced by the provisions of the Bill.

Early in January we were enabled, through the courtesy of the French Government and the kindness of the Institut de France—the attainment of whose centenary this year is an event of high importance, not only to Europe, but to the world at large, and one which evokes our heartiest congratulations—to exhibit a remarkable series of drawings of the Pantheon, the work of Monsieur Chedanne, *Grand Prix de Rome*. Later in the year it was our good fortune to welcome a large number of architects and engineers from Cologne and the Lower Rhine, who paid a week's visit to London. Both these events possess a value to us, as professional men, distinct from the purposes they may be said to serve, for they

initiate association and establish ties between the architects of different countries, few, if any, of whom should be better acquainted with each other or respect each other more than those of Germany, France, and England.

Some effort also has been made during the last few months to arrange a scheme for the utilisation of our loan collection of educational books by members resident at a distance from London and by the Allied Societies. A catalogue of this collection has been published in the *KALENDAR* issued to members last week, with the object partly of showing them how the collection is composed, and partly of inducing them to offer suggestions for its improvement, or even to contribute additional copies of works in constant demand by Probationers and Students. A Report on the subject will be submitted, I believe, in due course; and meanwhile I content myself with urging you to look carefully at the catalogue to which I refer, and to give the matter your serious consideration.

ARCHITECTS AND THE PUBLIC.

RESTRICTED EMPLOYMENT OF THE ARCHITECT.

The more usual course on these occasions is for the President to address his brother architects, looking chiefly at their position with reference to their employers, the public—by this term meaning either private employers, public bodies, or associated committees. It may not, however, be disadvantageous for once in a way to look at the matter from a somewhat different point of view, and to consider what architects have a right to expect from the public, and especially in the case of public competitions, which are often very unsatisfactory, and to which I shall refer at some length further on.

There seems to be an impression abroad, and one which is very unfavourable to our profession, that the services of an architect are not required unless a building is to be of an ornamental character; and that, when an architect is called in, it must necessarily be more costly than in those cases where he can be dispensed with. We all know that that is a great mistake; but it would be mutually advantageous to the public and ourselves if it were realised that the well-ordered plan elaborated by a skilful architect must necessarily be economical in many ways, and if some initial expense has to be incurred by his insisting on sufficient solidity and good material, it is very soon recouped, and over and over again saved in the repair bill. If the employer asks for a building without ornament, the true architect will make no objection: he will know how to produce a good and comely, or even stately, building without it.

One of the greatest satisfactions that an architect can feel is when the ultimate cost of a building is kept very closely to the first estimates. When this has not happened it may very frequently be traced to a want of proper confidence shown to the architect at the outset. The employer supposes that it will promote economy if he names at first a smaller amount than he is prepared to spend. To this the architect adapts his design, and the work is commenced; but, as it proceeds the employer—or perhaps his wife—demands additional size, or other modifications, which can only be introduced at a greater cost than would have been the case if they could have been embodied in the original design. Something of this kind can also have arisen from the work having been commenced in too great a hurry by the urgency of the employer, owing to his ignorance of the time required for the due elaboration of the design. For, however long he may have been himself deliberating on the undertaking, almost as soon as the architect has been consulted the contract drawings are expected to be ready, and the work put in hand before the plans have been maturely discussed between the employer and the architect. Much time and much subsequent worry might frequently have been avoided by a few weeks', or even days', free intercommunication before the design was put into execution.

We are all of us, however, I feel sure, familiar with cases where due consideration has been shown by the employer to the architect; but I have no occasion to enlarge upon these.

BUILDING SURVEYORS UNDER LOCAL AUTHORITIES.

In communications between architects and the District Surveyors in London the latter are found almost invariably just and courteous; but I am informed that in many provincial centres the local Acts and By-laws (which had not during their formation the advantage which the London Building Act had, arising from the great pains which some of our members took in discussions with the London County Council, obtaining thereby important amendments) are administered under surveyors who have often had no architectural training whatever. Architects who may be practising in those places are frequently much harassed, and interfered with in an unwarrantable manner, even to the extent of the builder being ordered to alter parts of the work without any reference to the architect. According to the information I have received, public or municipal buildings seem to offer the most frequent occasions for the kind of interference complained of.

Our brethren of the Allied Societies may feel assured that if there are any points connected with this matter on which they think the Institute can aid them, the Council will be very glad to receive communications on the subject.

COMPETITIONS IN GENERAL.

The most unsatisfactory relationships between architects and their employers are apt to arise in the arrangements connected with architectural competitions. That the competing architects are not unfrequently themselves to blame for part of this has often, and not unjustly, been said both in this room and elsewhere; but much of it is caused by the promoters of competitions, who ought to consider more than they are apt to do what is due to the profession. This is, no doubt, often the result of ignorance on their part, and, if so, there is hope that it may be gradually improved. It is already a favourable sign that in very many recent competitions professional assessors have been appointed, but there has been in too many instances a want of proper consideration shown to the assessor's award.

On the subject of architectural competitions in general my immediate predecessor in this Chair contributed a Paper to the *JOURNAL OF PROCEEDINGS** in April 1891, the arguments of which appear to me very hard to meet, showing that the principle of these competitions is altogether wrong and beneficial neither to architects nor to the public. This statement, however, with respect to the former, perfectly true as it is, as I hope presently to show, may not be quite so convincing to all of us as to the public; because, whether rightly or wrongly, young aspiring architects probably do think that from competitions, whether they are successful or not, they get an opportunity of advertising their powers. But as regards the public, it appears to me that Mr. Macvicar Anderson's argument in the Paper referred to is solid all round, namely, that a competition is not the way to get the best architectural result. It can hardly ever happen that any set of conditions and instructions issued by a committee can supply competing architects with all the information required for forming a successful plan at all comparable to the free intercourse of an appointed architect with his employers at the outset. At any rate, whenever a competitor has obtained such full information it must have been by means not equally accessible to other competitors, and therefore unfair to them; and there is little probability of a design based on such data being the best which would have been possible if all had been as fully instructed. Let us, however, suppose there has been no unfair running, that the architect has been appointed who has gained the award, and that he is really the most

* See THE R.I.B.A. JOURNAL, Vol. VII. N.S. (1891), p. 247.

skilful of the number. When he becomes more fully acquainted with the circumstances of the problem he will almost certainly find that material alterations from the competition design ought to be made, and probably will have to be made; in which case it can hardly be otherwise than that he will be much biassed by the first design, and he would have produced a much better building if he had been appointed without a previous competition.

It seems to me quite clear that an architect's best work cannot be brought out by competition as we generally understand the word. He must, so to speak, be serving two masters—one that which is best in the abstract, and the other that which is most likely to please the promoters, who often are very incompetent persons. It may be said by some that the spur of competition is useful in exciting genius; but a far healthier stimulant is the wish that a building which may have been entrusted to his hands shall redound to his credit. This is the true and only competition which ought to be encouraged.

COMPETITIONS AND COMPETITORS.

Then as to the bearing of the question with respect to our profession, my attention has been drawn by a friend to the case of a recent competition, that, namely, at West Ham.

"Here," he writes, "75 designs were sent in for a building to cost £40,000. One man would get properly remunerated, two others get small inadequate premiums, and the remaining 72 will have lost all the time and money spent. At the ordinary professional charge for sketches only, viz., 1 per cent., the amount would have been £400 for each of the designs, so that at this rate the cost of professional labour has been nearly three-fourths of the cost of erecting the building. Surely this must be a great loss to the profession as a whole, and the great majority of the competitors might have been better employed and more profitably. Business men have frequently expressed the utmost astonishment at this wasteful system."

Another point which ought to be considered as exercising a very unfavourable effect upon architects who engage in competitions is the severe mental strain to which even a successful competitor must be subjected in compressing his work into too short a space of time. There is nothing in other liberal professions at all analogous to our architectural competitions, and they certainly do not raise architects in public estimation, particularly in the way in which they are so often conducted now. The practice has become so general that I cannot flatter myself it can be arrested; but it may be improved. In his excellent address recently given at Manchester [p. 34], Mr. Holden, the President of our Allied Society, in referring to this very subject, points out the most effectual means, and concludes thus:—"The question is a very difficult one to deal with, especially so long as architects of position can be found ready and willing to enter into competitions on almost any terms. If leading architects would refuse to compete excepting on fair and proper conditions, there might be some chance of obtaining better conditions; but until this is done I really cannot see any way out of the difficulty."

Instead of resorting to competition, a far better plan would be for promoters to discuss among themselves and settle who the architect should be for any particular work. Committees of promoters who think they are securing for the subscribers whom they represent the best result by eliciting, as they seem to expect, happy inspirations from a number of different minds and choosing the best of them—which by no means follows as a matter of course—go a very wrong way to work. Again, if there be any occasions when competitions are more undesirable than others, it is in cases where adaptations are to be made to existing buildings.

I have thought it right thus to affirm my entire agreement with my predecessor in his views on the subject of competitions in general, in the hope that in some, however few, occasions it may be taken into consideration by promoters. Now I have to discuss some points

in connection with the system, already become so fashionable, which will be applicable both to open competitions and to those that may be restricted to a limited number, looking at the matter as much as possible from outside the profession. One observation I would first make to competitors, and that is to urge them to take the advice given from this Chair by Mr. Waterhouse in his Address to Students in January 1889, namely, that when unfair or obviously misleading conditions of competition are issued by a promoter, the duty owed to the profession is to make no response. In short, Answer him not.

COMPETITIONS AND THEIR PROMOTERS.

Unfair conditions are not always—indeed, I should rather say are not generally—the outcome of unfair or ungenerous feeling on the part of promoters; for their often objectionable clauses competing architects are much to be blamed. At various times architects have competed when they ought to have declined, and thus led promoters to think that they will get a sufficient response under almost any circumstances. An example of the kind, embodied in an invitation to architects, accompanied by a proposed set of conditions, from which I select the clauses that bear upon the subject before us, has come before me, which, however, seems to be but a specimen of a class; but it is a class which I think must yield to improvement if architects will but make a proper stand against anything of the kind by refusing to compete. It will be observed that in these the authority of the assessor is reduced to the lowest possible degree. This was a competition for designs for enlarging existing buildings, and the conditions were virtually as follows:—

- (1) The committee have appointed Mr. _____ to act as assessor to assist them in their selection.
- (2) Block plan of present buildings can be seen by appointment.
- (3) Drawings required:—
 - (a) Block plan, with position of buildings, roofs, drainage, $\frac{1}{10}$ in. to the foot.
 - (b) Plans of each floor.
 - (c) Elevations and sections, $\frac{1}{4}$ in. to the foot.
 - (d) Plan of suggested alterations, adapting same for connection and communication with proposed new buildings, and improvements of sanitary arrangements.
- (4) Each to be accompanied by a complete specification and description of means of heating, lighting, ventilating, and draining.
- (5) Any design will be excluded which in the opinion of the committee and the assessor does not conform to—
 - (a) If sent in after date mentioned.
 - (b) If it does not give the accommodation asked for.
 - (c) If the committee and assessor should determine that the probable cost of work carried out would exceed the limit laid down.
- (6) The committee will award a premium of _____ [namely, a sum not quite amounting to 1*d.* in the pound, reckoned by the limit of expenditure named in the conditions], subject to rule (5), to the author of the plans considered the most suitable; and upon such premiums being paid the plans shall become the absolute property of the committee.
- (7) Should the committee employ the architect receiving the premium to carry out his designs (with or without modification), such premium to merge in his commission.
- (8) Accommodation required [a long list of desiderata].
- (9) Committee reserve right to appoint quantity surveyor.
- (10) The limit of expenditure.
- (11) After award plans of unsuccessful competitors to be returned, carriage paid, but the committee will not be responsible for any loss or damage.

No lengthy comment is needed on the above. The committee under these conditions, by a majority of one, might, in consideration of the premium offered in clause 5, impound the plans and put them in the hands of a Clerk of Works to execute!

In commenting in *The Builder* of the 19th ult. on a recent competition, the Editor calls attention to the absurdity of a somewhat favourite condition issued by promoters—viz. that the designs are to be accompanied by a tender from a responsible builder. How could a *bona-fide* tender be given unless the quantities were taken out! And we all know what a long operation

that is—absolutely inconsistent with the circumstances of a competition. And then follows a condition which ought to have warned any reasonable-minded architect off the field—viz. that the committee reserve the right to retain and carry out, at their own pleasure, all or any parts of the premiated designs without any reference to the architect.

Surely in vain the net is spread in the sight of any bird, said the wisest of men—but he evidently had not reckoned for an architectural competition!

I am glad, however, to be able to bring before you another case, of which the preliminary proposals have lately been issued, and from which I extract some clauses forming an agreeable contrast with the last:—

(1) The President of the R.I.B.A. to nominate an assessor.

(2) The assessor shall draw up the conditions of the competition, and in giving his award shall state in writing his reasons for doing so. All the competition designs shall, with the consent of their authors, be publicly exhibited after the award has been given.

(3) The design awarded the first place by the assessor shall be the design adopted unless it should be found that a majority of not less than three-fourths of the entire committee are in favour of any other of the competing designs, which in the latter case shall be adopted.

We are all, I believe, convinced that no response ought to be made to an invitation issued for any competition unless there be a professional assessor appointed; and it is self-evident that such assessor ought to be a man of high standing, and free from any local interest. But, with this exception, rather different views appear to be held respecting the degree of authority with which he ought to be invested in regard to the appointment of the architect to carry out the works after he has given his award. There is one thing, however, of extreme importance, namely, that he should not be called in, as is too often the case, when a number of designs have been sent in in answer to the unassisted invitation of the promoters, but that he should himself take the leading part in the preparation of the conditions and instructions. When this is done promoters may be saved from making many mistakes. A very misleading error they often make is to give out a statement of their desiderata, and proceed to state a limit of cost, which are frequently quite incompatible with each other. Hence arises a source of very great perplexity both to the competitors and to an assessor appointed after the designs have been sent in, the latter finding it impossible to adjust the two irreconcilable views. There is, however, an objection of some weight, though not comparable with the absence of professional direction, in the drawing up of conditions, that if the assessor is known beforehand—and it is hardly possible that in his conferences on the spot with the committee of promoters he should remain *incognito*—the competitors will be more or less influenced in their designs by the study of his known or supposed architectural bias; and this is perhaps the reason why the assessor has so often been only called in at the last moment, when all the mischief introduced by careless and misleading rules has been done. It is, however, a difficulty which, when thought of sufficient consequence, could be avoided by various means obvious to those who have experience in such matters.

Returning to the question as to the amount of authority which ought to be given to an assessor, it certainly appears to me that he should not be merely allowed to recommend a certain course of action to the committee of promoters, but that his position should be made predominant. As, however, the promoters can hardly be expected entirely to give up their control of the decision, I gladly endorse, as the course which meets the view I had myself already formed upon it, the condition I have already quoted, that the assessor shall have the duty of nominating the architect, unless his selection shall be challenged by three-fourths of the whole committee; and I think that such a clause as this would satisfy our expectations, which several recent repudiations of the assessor's award have seriously disappointed. It has been suggested that the assessor's award should carry the appointment absolutely, unless

some valid reason be forthcoming to the contrary, and that such validity should be decided by appeal to the President of the Institute. But it appears to me that promoters would be more likely to agree to the former rule, which would in almost every case exclude local favouritism.

The course which appears to me to be the most desirable, and which I am glad to find coincides with the opinion of several highly experienced assessors, forms one of the Suggestions printed in our KALENDAR, namely—that the promoters should by advertisement invite architects “willing to compete for the intended work to send in their names by a given day; with such other information as the candidate may think likely to advance his claim to be admitted to the Competition. From these names the Promoters, with the advice of the Assessor or Assessors, should select: (a) ” [and this I hold to be the better course] “an architect to carry out the work; or (b) a limited number to compete, and each Competitor thus selected should receive a specified sum for the preparation of his design. The author of the design awarded the first place should be employed to carry out the work”—and to this might be added a very desirable suggestion, that some proper remuneration should be given to the architect selected if the work should not be carried out under his superintendence within some reasonable time.

THE INSTITUTE, THE PROFESSION, AND THE PUBLIC.

THE DEVELOPMENT OF ARCHITECTURAL EDUCATION.

In the extremely able Address that my friend Mr. T. G. Jackson, A.R.A. (a name to which I greatly regret I cannot add the letters F.R.I.B.A.), gave at the opening of the Liverpool School of Architecture, and which has been printed in the JOURNAL [Vol. II. p. 636], he says that “throughout the land technical schools and institutes are rising.” Nothing, indeed, can serve to encourage those who have laboured in the cause of education for architects and handicraftsmen more than the foundation of the Liverpool School, under the combined auspices of that city and of Victoria University; and I see no reason why, after efforts similar to those which have resulted in success at Liverpool, other important cities in the United Kingdom, such as Edinburgh, Dublin, Manchester, Bristol, Oxford, and Cambridge, should not found or develop a like School, and a like Professorial Chair of Architecture. I do not mention Glasgow because a Chair of Architecture is already in existence there. The Institute may well be proud of the remark made by Mr. Jackson above referred to, for the initiation of this gratifying development of architectural education, which is to be witnessed throughout the United Kingdom, is mainly due to us.

Let us go back together for a few years, even less than twenty years, and ask ourselves whether we are any the worse now for the change, if any, which has come over our art from this still-vexed matter of education; or, indeed, whether any change whatever has taken place which may be deemed detrimental to our art. What security had we, in the year 1875, that the young men whom we elected Associates of our body had received any, even the most superficial, education, scholastic or technical; or that they were fitted, by nature and position, to exercise the functions of an architect? How was an outsider then to know, except by personal trial, whether any Associate R.I.B.A., whose reputation was not established, had or had not received any education in the art, science, business of architecture? All that we required in those days from a candidate for the Associateship was his nomination by three Fellows who knew him, and his ability to pay an entrance fee and an annual subscription, with his acceptance of honourable obligations such as are now in vogue. Twenty years ago we were pointedly asked in this room by a visitor, What evidence was there that any man setting up as an architect had the smallest scientific knowledge, or even a knowledge

of mechanics, or of the qualities of different materials, or in short of anything at all except the power of making a sketch which might satisfy ignorant employers, and plans and elevations from which builders would never hesitate to contract? The question was left unanswered at the time, and a year or so afterward, when we rearranged our By-laws, one was added to the effect that, after May 1882, no one should be admitted to the Class of Associates until he had undergone the test of a professional Examination. At that time the Council were strengthened by the inclusion of most of the Past Presidents and Past Vice-Presidents, who gave not only advice but a great deal of assistance in the work of reorganisation; and I should be unjust to the memory of an able colleague, who occupied this Chair with advantage to the Institute, were I to omit mention of the late Mr. Whichcord, whose energy and business capacities largely contributed to its success. Nor can I forget that the late George Edmund Street presided over the then newly constituted Board of Examiners, and took an active part in the work which preceded the first obligatory Examination held in March 1882. The results of the subsequent thirteen years are visible in the establishment and development of schools, of studios, of classes of architecture and the subsidiary sciences and arts.

One of our earliest efforts to reach the public was to publish, in 1870, a List of Books recommended to professional students; and a revised list, slightly modified in form, was published in the JOURNAL OF PROCEEDINGS of 1882-83. This afterwards appeared in the first issue of the KALENDAR in 1885, and a revised form of it has been regularly included therein. About the same period communications were addressed on this subject to the chief provincial centres, and we were soon gratified to learn that some of the free public libraries, notably those of Liverpool and Manchester, had acquired the books thus recommended, and that students in those centres preparing for our Examination could find there, ready to hand, some at least of the means of education. In 1887 one of my predecessors in this Chair, the late Mr. P'Anson, addressed a letter to each Fellow and Associate, calling attention to the views he had expressed in his Presidential Address of that year on the subject of education generally, and stating that the future prosperity and influence of the Institute, and its position as a representative body, must depend on the continued and increasing accession of the younger members to the class of Associates. He therefore urged that the direct personal influence of the elder members was necessary to guide the studies of their pupils, and assist them towards successfully undergoing the test of examination. The personal response given to that appeal at the time was most gratifying, and the results are even more so; for in October 1887 the Associates numbered 681, of whom 122 had passed an examination prior to election, while at the present moment, in November 1895—only eight years later—they number 924, of whom 577 have entered after examination. There are, moreover, on our registers 142 Students and 708 Probationers, most of whom, in due course and in regular progression, will seek admission to the class of Associates.

Not the least potent factor in the spread and development of education has been the alliance of non-Metropolitan Societies with the Institute. The main objects of this federation, which were stated at a meeting of the General Conference of Architects held in this room in May 1887, were educational: they were embodied in By-laws made under the provisions of the New Charter of 1887 and approved by the Privy Council in February 1889. Nine Societies were almost immediately taken into alliance, and at the present time they number fifteen at home and one in Australia. In 1893 a Conference of these Allied Societies, then thirteen in number, was held at the University in Liverpool for the purpose of discussing a proposal to divide the United Kingdom into districts, of which the local Societies then or hereafter allied to the Institute would be the respective centres. Among the results of the Conference which approved the proposal was a collective opinion, stated in the form of a resolution, that the establishment of

such districts, each with its local allied centre, would enable arrangements to be made for extending throughout the country the advantages of our Examinations, and promote a systematic organisation for educational purposes by utilising and developing the means of instruction available at or connected with such centres; and it seems to me that the opinion then formed was far-seeing and correct.

Gentlemen, let me beg you to look into our KALENDAR for the Sessional year of 1892-93, in which the local "educational facilities" at each allied centre were given for the first time, and compare them with similar particulars in the KALENDAR which has just reached your hands. This will assure you of the success that has attended the federation of the chief architectural bodies in the United Kingdom, as well as of the favourable influence that the establishment of an obligatory test, in 1882, has had on the education of architectural aspirants. Only three years ago, in our thirteen Allied Societies that of Manchester alone possessed a lecturer in architecture, namely, Mr. Stelfox, the Ashpitel Prizeman of 1888, who conducted classes held by the Society on Monday evenings. That of Liverpool had a sketching club and also Classes of Design and Construction, with a special course of instruction which from the subjects it included may be said to have been based on the programme of our Examinations; and each subject was entrusted to a member of the Society who acted as lecturer and visitor. That of Birmingham had a Class of Construction held at Mr. Lloyd's office, and a Class of Design held at Mr. Hale's office, at both of which members of the Birmingham Association attended as visitors. That of Sheffield had classes for the study of specific subjects. The Societies at Leicester, Glasgow, Newcastle, Bristol, Nottingham, Dublin, Leeds, Exeter, Dundee, in 1893, had no educational courses of instruction; and, except in Glasgow, which possessed Mr. Gourlay, and in Leeds, which possessed Mr. Howdill, there were no outside instructors in the various technical schools situated in those towns, nor had those institutions courses of instruction to which young men hoping to become architects could apply themselves with confidence.

But the progress which two years alone have wrought is remarkable. In our KALENDAR recently issued it will be seen that every allied centre now possesses local educational facilities of some kind, more or less complete, for architectural pupils. At Sheffield the Allied Society is connected with the School of Art, and at the technical school in that centre a course of instruction,* both elementary and advanced, is given. In Leicester the School of Art affords similar instruction, but as yet it has no professional instructor. In Manchester excellent opportunities are offered at the Municipal Technical School for instruction intended expressly for architects' pupils, improvers, and assistants preparing for our Intermediate and Final Examinations; and at the Municipal School of Art in that city the teaching staff includes Mr. Walter Crane;† while in the Manchester district, at Acerington, Bury, Blackburn, and Todmorden, there are classes of a similar character. In Glasgow the School of Art, with which the Glasgow Institute is closely identified, has courses of study arranged to include the subjects required for our Intermediate and Final Examinations, with lectures on "Domestic Architecture," and "Design."‡ At the same allied centre the Glasgow and West of Scotland Technical College has organised some most complete courses of instruction under the direction of Professor Gourlay, and established a studio in which instruction is given by Mr. Lochhead, all of which have been fully described in our JOURNAL. In Newcastle-upon-Tyne three different institutions provide more or less instruction for architects' pupils. In Bristol the University College has a special educational course, adapted to architectural students. At Liverpool the School of Architecture and Applied Arts, already referred to, and of which

* Mr. Wigfull [A.] Institute Medallist for 1894.

† Mr. Glazier [A.] is associated with Mr. Crane in this work.

‡ By Mr. Alexander N. Paterson [A.] and Mr. W. J. Anderson [A.]. Both Associates.

a full description is given in our JOURNAL, bids fair to make its scheme of instruction valuable and successful. At Birmingham a four years' course* has been instituted; and at Leeds† instruction is given both at the School of Art and the School of Science and Technology. At Dundee there are two educational centres for young men preparing for our Examinations. In Dublin lectures are given, adapted to architects' pupils, at the Metropolitan School of Art,‡ at the Royal College of Science, and the Technical School; and at Nottingham, Exeter, York, and Cardiff there are local educational facilities in a more or less advanced stage of organisation. In the greater number of the above cases the lecturers are members of the Royal Institute of British Architects.

In fine, there are now Chairs of Architecture in Glasgow and Liverpool; and there are schools in which the elements of architecture are taught, formed or forming in most, if not all, of the districts into which we have divided the United Kingdom. Less than ten years ago hardly anything of the kind existed outside the metropolis; and I who have taken only a very subordinate part in the work which has led to such satisfactory results venture to offer to those gentlemen who have mainly contributed to it my hearty congratulations.

The consistent course of study which for several years is looked for from those who undertake to acquire the very responsible business habits and the literary and artistic knowledge involved in the practice of architecture can hardly fail to have the effect of giving assurance to employers that in selecting an architect who has passed the ordeal they cannot be dealing with a charlatan. When regarded from the point of view of an aspirant or his parents, it is not denied that the required curriculum is intended to deter those whose abilities, or capacity for hard work which has been well defined as genius, do not lie in the direction of architecture; but, to those who are not so disqualified, it may prove a sufficient encouragement that many others, to whom they have no need to consider themselves inferior, have succeeded in passing the Examinations.

Connected with this subject, there arises one point worthy of our consideration, and to which I feel I ought to refer—namely, the fact that the Examinations are conducted by volunteers from amongst our members. It will not be thought surprising that this makes a considerable difficulty in keeping up the rota of Examiners able and willing to undertake the work. Greatly indeed is the Institute indebted to those who have hitherto volunteered and still continue to do so; but it would facilitate the progress of the Examinations very considerably if reasonable fees could be found for the Examiners. The obstacle to this course lies mainly in the emptiness of the Institute's treasury, on which subject we lately had some important remarks from our Auditors at the June Business Meeting. This emptiness of the treasury is engaging much attention from the Council, and will not be lost sight of during its coming deliberations. I certainly feel that, should a sufficient improvement be the result, a moderate honorarium to the Examiners would form a fitting application of part of it.

THE METRICAL SYSTEM OF MEASUREMENT.

There is a matter very seriously affecting us whose daily duties lie with *pondere, numero, et mensura*, to which I think it may not be out of place for me to refer here. Not long since the Parliamentary Committee appointed to consider the national standards, &c., reported in favour of our adoption of the metric system. The change would no doubt introduce certain far from unmixed advantages, but it would be attended with enormous trouble not to be got over for many years. I venture to take this opportunity of bringing before this body—than which no other in the kingdom could be so well or practically able to appreciate

* Mr. Bidlake [4.], Institute Medallist 1885, is the principal lecturer.

† Mr. Howdill [4.] continues his course of instruction.

‡ By Mr. Cecil Orr [4.].

it, and to which it would come home so intimately—an alternative which I cannot but think to be worthy of your consideration, in the hope that, if it should be well received here, some course founded upon similar ideas might make its way with the public. Instead of swallowing the metric system as a whole, what I here venture to recommend would, unless I greatly deceive myself, give to our commercial classes all that they could properly ask for, and to ourselves and the millions of the industrial classes all the advantages which could arise from the metric system, with less than one-tenth of the disturbance. The scheme involves a very insignificant change in our own reckonings of length, weight, and capacity to render the English standards easily commensurable with the French. I shall confine myself in what I say this evening to the measurements of length, as it is in these, it seems to me, that the change to the metric system is most to be deprecated; and suggest an alternative course by which we could obtain all the advantages of decimal notation without having to be saddled with the unwieldy metre—a standard that has to be used fractionally in 999 cases out of the thousand which occur in daily use.

If our inch were reduced in length by about one hair's breadth, ten such inches would be twenty-five centimetres, a measure which is current in Italy, the *palmo* having been altered so as to agree with the quarter of the metre. I would therefore recommend the word *palm* to be used to denote a length of ten such inches, thus serving for general use instead of the foot, and giving us at the same time a decimal notation, whilst all small dimensions could be reckoned, as now, in inches, halves, quarters, and eighths, or decimals of the inch at pleasure. In our dealings with those nations that have adopted the metre, it would be only necessary to multiply or divide by 4, as the case might be; that is, divide a measurement given in metres and centimetres by 4, to bring it to English palms and inches, or multiply English palms and inches by 4, to bring them to the metrical scale. The slight alteration in the inch would not be felt in the dealing of our poorer classes, who are really the persons, both numerically and morally, to be most considered, and the complication introduced in commercial transactions would be very slight. Scientific calculators could readily take care of themselves. Weights and measures of capacity could be dealt with in an analogous manner by an almost insensible alteration of the ounce or the pound, the pint or the gallon, though the necessity in these, perhaps, would not be so great, because the kilogramme and litre are more reasonable standards than the metre. The above is the broad outline of the scheme which I venture to bring before you, and it is not fitting that I should carry it any farther this evening. I can hardly think that the proposal has not been made by any other person, but I have not taken it from anybody else. I am not advocating change, though I confess to leaning towards decimal subdivision, and to a desire for greater uniformity and simplicity, especially in our measures of capacity; but if a change is to come, I trust it will not be by the metric system adopted *en bloc*.

THE CLASS OF FELLOWS: AN APPEAL AND A SUGGESTION.

I began my perhaps too lengthy Address by a reference to the sad losses we had sustained in the ranks of members, and I propose now to conclude with some comments on the accessions made during the past twelve months, amounting to 5 Fellows, 67 Associates, 3 Hon. Associates, and 8 Hon. Corresponding Members. But, as a matter of fact, the Class of Fellows has lost, not gained, strength. The Fellows, who last November numbered 617, at the present hour number 594, being a diminution of 23. The Associates, who a year ago were 872 in number, have, on the contrary, advanced to 924, being an increase of 52; and in the course of the year only four out of the 872 have become Fellows. One gentleman who applied, and who had never been an Associate, was elected a Fellow at the final Business Meeting of the past session. I have also ascertained that during the last two years (1893–94

and 1894-95) only four outsiders, if I may be allowed so to designate men outside our ranks, and not previously Associates, have been admitted to the Class of Fellows, though during the two previous years 56 outsiders were admitted. During the two years before, 50 were admitted, and during the antecedent two years (1887-88 and 1888-89) 69 were admitted, to the Class of Fellows. These outsiders, as I venture to term them, were architects in the provinces, at foreign stations, in Australia and the Colonies, with a few Londoners—men who had had little, if any, opportunity when young of becoming Associates. If you will glance through the published lists you will find that they constitute an addition of strength to the Institute, and in many instances have added lustre to the roll of Fellows. Again, after a further dive into statistics, it will be found that of the 34 Fellows who sit on the present Council fourteen were outsiders; and yet were I to read out the names of the fourteen we should certainly agree that the Institute would have acted most unwisely and lost a great deal had it refused to admit them as Fellows simply because they had not previously been members in the Class of Associates. On this point, which I know full well is a delicate one, much misapprehension seems to exist both within and outside the Institute. In the first place, there is an abnormal amount of hesitation on the part of Associates long in practice to proceed to the higher grade, though we all look for such a sign of movement in its ranks; and we think that justice is not done to the high position the Royal Institute of British Architects is gradually acquiring if little or no progress be made in such direction. In the second place, too many practising architects of repute, and even a few of well-earned distinction, form no part of the Institute, forgetful, as too many of them are, that their influence and usefulness would be infinitely greater were they members of the corporate body, prepared to discuss important matters without bias, and to sink details of difference in a spirit of compromise, without which no Corporation, Community, State, nor Government of any description has ever been successfully carried on.

Colleagues and Gentlemen, I am about to make a suggestion which I hope may be received with favour, or at least with goodwill equal to that with which I venture to formulate it. This is the last occasion I shall ever deliver a Presidential Address from this Chair. Though I am not the senior Fellow, yet I applied for admission to the Institute as an Associate in 1845, and this coming January I shall have been fifty years a member. On the strength of long acquaintance with those present here to-night, and with many others who, alas! are lost to us, I venture to make an appeal to the good feeling, the good sense of British architects everywhere, whether members of the Institute or not—whether they call themselves artists or professional men—to join hands and show a united front to all and any who would do them wrong, either from an artistic or a business point of view. Let us, on our part, convince the outside men—men of distinction, men of repute, who are not members of this body—how gladly we shall see the barriers removed which prevent them from joining us; and how willing we are to do whatever is reasonable to remove them. It is not for us to say that possibly some of the barriers alluded to may not be, to some extent at least, of our own raising; and it would be a very fit subject for our Council to discuss whether greater facilities could not be made for the admission of Fellows from among those whose career shows that they would be worthy members of our body, looking at architecture as a career in which the two essentials of art and business have to be represented, though not always in equal degrees of combination.

It has more than once occurred to me during my tenure of office that one of the main reasons for the recent startling paucity of applicants for the Fellowship is the possibility that architects of mature age, men who have carried on extensive practice for the greater part of their lives—men whom we wish to see Fellows of the Institute, but who are not and never have been Associates—hesitate to take their chance of election

at the hands of a body of electors some of whom have only within recent years emerged from the position of pupils. It seems to me, for instance, somewhat sanguine to expect that men who are well-known members of the Royal Academy, of the Society of Antiquaries, and of other institutions in which for a long period they have been recognised as architects of repute and distinction, will consent to run the risks of an election dependent on the good-will or ill-will, or the prejudices, of some thirteen or fourteen hundred gentlemen, the vast majority of whom are their juniors, and some of whom are not even in practice. I, therefore, though with great diffidence, and with all respect for the more youthful of my colleagues, urge the Institute to consider whether the power of admitting to the Class of Fellows such men as those to whom I refer may not be confided solely to the controlling or governing body of the Institute, at least for the space of a year, or perhaps two years. The regulations which guide the Council in the admission of applicants for candidature as Fellows are sufficiently definite to constitute a check on any improper attempt to make such admissions too general or indiscriminate. The change may be effected by the suspension of certain By-laws; and, though such suspension requires the sanction of the Privy Council, I feel convinced that their Lordships, when the facts are properly explained, will acquiesce in the petition which it would be our duty to address to them. What I propose has good precedents to support it. For instance, in my own club—the Athenæum—the Committee have power to elect from time to time distinguished persons without submitting them to the chances of a Ballot of the whole body of members; and this is held to be a great honour by the persons themselves, while it is certainly of high advantage to the club. The way being thus opened, I venture to think that the Council would have little difficulty in reaching the majority of those whom we consider should be part of the corporate body, and in effecting, to a great extent, the fusion with ourselves of many, especially in the provinces, who resent the position in which they are placed from no fault of their own, but who are, nevertheless, forced to remain outside the ranks of the Institute, to our mutual regret and, perhaps, to the latent annoyance of both.

I trust that this suggestion, for which I hold myself solely responsible, may be deemed worthy of consideration by the Institute in general meeting, and that the result, if arrived at, may prove as beneficial to all the parties concerned as I confidently expect.

VOTE OF THANKS TO THE PRESIDENT.

MR. ASTON WEBB, F.S.A., *Vice-President*.—Sir, at very short notice the honour has been placed upon me of moving a Vote of Thanks to you for the Address that you have been so good as to deliver to us to-night, an Address that, I am sure, we all feel has many practical suggestions which will be to the great good of this Institute if they are adopted, as I hope they may be. I feel that it is almost an impertinence on my part, with those present to-night, to undertake this duty; for while they could do it easily and well, I shall do it imperfectly and with difficulty; but I hope, Sir, that my imperfections will not, at any rate, interfere with your feeling that this Vote is proposed to you in the most hearty way possible. In any remarks on the Address that you have given us, Sir, it would be impossible to pass over without a few words the notice that you made of the late Ewan Christian. He was so noble, so fearless and so true, that every one who had the

advantage of even half-an-hour's conversation with him must have felt the better for it; and I am sure we all feel, as you do, the great loss that we have personally, and as an Institute, sustained in the death of Ewan Christian. You noticed, Sir, in passing, the improvements to the Library. It is the hope of the Council that they will be appreciated by the members, and that the Library may be more generally used. It is the wish of all those engaged in the Library—the Librarian and others—to give every possible facility to all the younger, as well as the elder, members, with easy access to all books; and we hope that now that this room and the Reference Library have been made more comfortable, the Library will be more used than it has been in the past. The principal portion of the commencement of your Address, Sir, was taken up with the subject of competitions. That is a subject to which I am not altogether a stranger, and if I do not quite take the same

view as you do, perhaps, at any rate, I may be allowed to mention one or two points which appear to me to be difficulties. As you pointed out, it is extremely difficult for the competitors without consultation with the promoters to ascertain their requirements; but most of these competitions are instituted by committees who do not know their own requirements; and I think that those who have had most to do with committees will generally find this to be so, and that it is really for the architect in those cases (I am only speaking of competitions on a large scale, because I think that competitions for little buildings are a mistake) to suggest how the objects of the promoters are to be met in the arrangement of the buildings. As regards material alterations in the design after it has been chosen, with all deference, Sir, I have not found generally that the competition design which has been selected by an able assessor does require any very large alteration in the carrying of it out. Possibly, you may have referred to the drawings; of course these have to be redrawn; but my experience is that the general lines of the design do not usually require to be much varied. As to the cost, Sir, of a competition design, you mentioned a competition for a comparatively small building at West Ham (I think it was), where the cost of each design is estimated at £400. In conjunction with my friend Mr. Ingress Bell, with whom I have had the pleasure of going into most competitions, I have never yet spent anything like that, I am glad to say, on any one design; and I think it would be a very bad day, as you say, for our profession if money had to be spent in preparing competition designs to that extent. I think it is now the aim of assessors who prepare these conditions, and should be their aim, to lessen the expensive work which has to be done in preparing a design for competition. With regard to the conditions, we all feel that very often conditions are sent out which are hard and improper on the competitors, and no doubt, as you say, in that case architects should take no part in the competition. But, on the other hand, I venture to think that that does not absolve the promoters of the competition from acting fairly, even if competitors do to some extent place themselves in their power by competing on those conditions. In a recent case at Durham the conditions clearly stated that the promoters did not undertake to employ the successful architect; but I think, Sir, that that hardly absolves the promoters from their moral obligation to carry out the successful design without showing some very good reason for a departure from that course; and, as you are aware, the Council have written to the County Council of Durham in that spirit. And, Sir, with regard to the selection of the architect by committees, or by promoters, I am not quite sure whether a committee would select

the best architect, any more than they do the best design. They are often ignorant both of architects and of designs; and, therefore, I am not sure, Sir, that one way would turn out better than the other. As to the powers of the assessors to advise, I think that the Institute has always felt that it is very difficult to ask any body of men to actually bind themselves by any award of a professional man. If you go to a doctor and ask his advice, and he recommends some very stringent measure—cutting your leg off, for example—you do not at all undertake to follow his advice, although, of course, it will have great weight with you; and if you go to a lawyer in the same way, he may advise you to go to law, and probably will; but still you hold yourself free to do so or not; and the competitions committee have always rather held that if the promoters undertake to be advised by a professional assessor, that was almost as much as we could expect them to do. The next point, I think, that you referred to, Sir, was the largely increased facilities for education which are now to be seen throughout England, and you congratulated, as I think, if I may say so, very properly, the Institute on the part it has taken in causing that increase to be made. It has, of course, been laid to the door of the Institute that it has not done as much as it should do in the teaching of architects; but I think that by the course it has taken it has certainly given a stimulus to architectural education all over the country by raising some standard and giving some object to young men as to what they must learn. This action of the Institute was largely brought about by the action of the young men themselves. It was for years that they were asking that something of the sort should be done; it was for years that they showed a very great and real need for some direction in their studies; and it was with the object of meeting that need that the Institute has taken the action which it has, and indicated to the young men by these examinations the sort of knowledge which it thinks they should acquire. If it is thought this course of study can be improved upon we should be glad of any suggestions. One of our Honorary Associates, Mr. Alma Tadema, recently gave a most admirable lecture, which was reproduced in our JOURNAL,* on the great importance for all men “to know”; and unless, Sir, we architects learn to know, and learn when we are young, however great an artist a young man may be, he will be working at a disadvantage; and it is the object, I am sure, of all those in the Institute who are working to this aim to encourage young men to know when they are young, so that, as they grow older, they may not have to spend their time in acquiring elementary know-

ledge which they should gain in their youth. And I hope, Sir, from the accounts which we get from the young men themselves, and from the numbers that now come, that that aim is being attained; and that young men are being put into the way of gaining this knowledge at the time when they are best able to assimilate it. With regard to the paucity of new Fellows, Sir, of course we all regret it, and any suggestion by which that paucity can be reduced will be most grateful. On the other hand the Associates are largely increasing, which means that the young blood, and new blood, is coming in in large quantities into the Institute; and in time that must tell, and make us a more vigorous body than perhaps we have been in the past. With regard to your suggestion, Sir, of admitting Fellows through the Council, I cannot but think that everybody would entirely agree to it and be much indebted to you for suggesting such a course. I think it is a most admirable one: it would enable us to honour those whom we all wish to honour, and to bring them in in a way which would both honour those who give and those who take. Neither can I suppose that many would not be willing to help us and come in on those conditions. The Institute has now been for more than sixty years endeavouring to do what it can. In the early times Charles Barry and Cockerell were actively engaged in it; in times since then we have had Scott, and Street, and Burges, and men of that stamp; we cannot think that they would have spent their time if this work were not worth doing. At the present time we have many of the most distinguished of our architects helping us; and we cannot think that they would spend the time they have upon the work if they did not think it were worth doing. But, Sir, the work cannot be thoroughly done unless we have the assistance of nearly every one, and I think we have the right to claim and ask all to come and help us who do not at present do so. We are quite aware that we have not much to offer them—we do not suppose that we have—excepting this, Sir, that we can offer them the opportunity of helping those who are less fortunate and less gifted than themselves. We hope that they will help us; so that, as a strong Institute, and as a united Institute, we may do a very great deal more than we can at present. The reason that I have heard urged why they do not join us is that we work in the interest of architects, rather than in the interest of architecture. But how is it possible for the Institute better to work in the interests of architecture? If we can influence architects by the help of those present here tonight and others—if we can inspire our young men with some enthusiasm and some greater love for their art—I think we shall do a very great deal for architecture. And it is for that reason,

I think, that we are much indebted to you, Sir, for the suggestion you have made.

MR. W. D. CAROE [F.], M.A., F.S.A., President of the Architectural Association.—I feel I am somewhat usurping the function of one of our Honorary Associates, but I hold it, Sir, as a great privilege to have been asked to second the Vote of Thanks for the Address you have just delivered to us, the second in which you have brought all the weight, the great weight, of your knowledge, experience, and judgment to bear upon the treatment of subjects of so much importance and interest to all of us. I do not think, Sir, that I need touch upon topics which you yourself have treated so fully and so elaborately; and especially in the matters of Architectural Education and Competitions I have myself only so very recently and so fully put forward my own profession of faith that further words from me on those subjects would be rather superfluous. And, Sir, we are in no mood to-night either for criticism or discussion. We have the greatest respect for any views expressed by you, and we are most grateful to you for your Address. We are conscious always of the long life of devotion which you have given to the great cause of architectural scholarship, and, I may say, of scholarly architecture; and for that devotion, Sir, we, and I may say the world, are enduringly but contentedly in your debt. If I may single out any one of the comments which you have made, it would be that in which you told us so pointedly that the truer the architect the more readily may he dispense with mere ornament, and produce for us buildings even the statelier and comelier for their very simplicity. I was very much interested indeed, Sir, in your references and practical suggestions as to the partial adoption of the metric systems of the Continent in this country. I have it in my heart to wish that some such happy thought had occurred to cause a revolution in our unspeakable weights and measures many years ago when I was an unhappy small boy labouring to master the strange and capricious statements set before me in my arithmetic book. And even now, Sir, every time it is the lot of my still unhappy self to grind out metres into feet, and to search for that missing element of homogeneity between centimetres and inches, I am inclined to forswear even patriotism, and to wish I had been born under a decimal constellation—anywhere, anything but “a happy English child!” But, Sir, there is some consolation for us even now, and for those who have often to work in the metric system one may mention it. Mechanical science has to some extent come to our aid, and it is a fact worth noting that the usual foreign scale which is adopted for drawings, namely, the 100th scale, is very nearly allied to our 8th scale, which is actually a 96th; and homogeneity is to be found beyond that slight difference in the points of a proportional instru-

ment. In regard to what you have said about Fellows, Sir, and the admission of Fellows by the Council, I followed you with a great deal of interest and pleasure. I do not know who has the privilege of being the youngest Fellow among us; but, Sir, I feel that, if things go on as they have been going on lately—although, perhaps, the collective heart of the Council beats with one throb when there were five nominations to-night—still I feel, if things go on as they are, a time will come when that youngest Fellow, if he has his

fair measure of life, will remain as the sole and only occupant of that chair in his declining years; because he will be the only one left whom our constitution allows to assume the purple. And, Sir, I cannot but hope most heartily that the general body will acquiesce in your admirable suggestion; and, if they have not confidence in the present Council to permit it to adopt the responsibility and assume the function you have suggested, the opportunity is not very far away when they can elect a Council whom they can trust to do that work.



9, CONDUIT STREET, LONDON, W., 7 November 1895.

CHRONICLE.

The Opening Meeting of the Session.

Mr. Penrose's Presidential Address, the delivery of which occupied nearly an hour, was listened to throughout with marked attention, his apologetic avowal that he had almost attained his fiftieth year of membership, and therefore ventured, on the strength of old acquaintance, to make an important suggestion, having been received with a loud and long acclamation of applause. The Meeting was not a large one, but it was graced by the presence of several ladies, among whom were Mrs. Macvicar Anderson, Lady Blomfield, Mrs. Carøe, Miss Penrose, and Mrs. Statham. Letters were received from Professor Aitchison, A.R.A., Mr. Campbell Douglas, Mr. A. E. Street, M.A., from the Presidents of the Leicestershire, Liverpool, Manchester, and Sheffield Allied Societies, expressing their regret at being unable to be present, and from the Hon. Secretary, Mr. Emerson, who was detained in the country by the serious illness of a near relative. Monsieur Lucas, of Paris, also wrote, in words of praise, of the volume of the JOURNAL just completed, and of the educational labours of the Architectural Association—"cette Société sans égale au monde"—adding that, at the moment of commencing another Session of the Institute, he addressed his "respectueux hommage" to its honoured President.

The Autumn Examinations: Preliminary and Intermediate.

A Preliminary Examination of architects' pupils and others for registration as Probationers R.I.B.A.

will be held in London, Liverpool, and Newcastle on the 12th and 13th inst., and on the same days the Written and Graphic portions of the Intermediate Examination of Probationers desirous of qualifying as Students will be held in London. To the Preliminary, 124 applicants, 17 of whom were relegated to their studies on previous occasions, have been admitted. Of these, 56 have been exempted, and 68 are to be examined, though two of the latter may possibly yet be exempted. For admission to the Intermediate, applications were received from 51 Probationers, 42 of whom, including 16 relegated to their studies on former occasions, have been admitted. The remaining nine, whose Testimonies of Study failed to satisfy the Examiners, have been advised to make another application next year; and meanwhile the Board will point out to them the deficiencies visible in their Testimonies, some at least of which must be executed afresh. The London Examinations will be held at the Examination Hall, Victoria Embankment, on the 12th and 13th inst., and the Oral Examination of the Intermediate will take place on the 14th inst. at the Institute. The Liverpool Examinations will be conducted under the charge of the Allied Society at the Law Society's Rooms, Union Court, Castle Street; and those in Newcastle, under that of the Northern Architectural Association, in a room at the Art Gallery, Grainger Street.

Mr. Carøe's Presidential Address to the Architectural Association.

The November issue of *A.A. Notes* contains the full text of the Address delivered by Mr. W. D. Carøe, at the opening meeting of the current Session of the Architectural Association on the 11th ult., in the rooms of the Institute; and those members who have not yet read its fresh and genial paragraphs may do worse than devote a little time to perusing the whole. Meanwhile, some extracts which touch on the relations of the junior to the senior body of British architects generally, and on the Examinations of the latter in particular, are here given:—

My first word is of architectural education. We represent the foremost educational body in matters architectural which has existed in the country, and this year has seen new needs and new developments in our systems

which call inevitably for explanation and remark. We exist primarily and expressly as an educational force, and have so existed for nearly fifty years, and our history groups itself entirely around this object, and shows this as our original and ultimate end. . . . Since these, our beginnings, we have had some necessary changes in our methods of education; from the system of instruction by mutual criticism has grown that of instruction by voluntary visitors, which continued until 1891, and made our classes so deservedly popular. Towards the close of the last decade, however, it became evident that some change would be inevitable. The influence of the new condition of things at the Institute was making itself felt. The Voluntary Examination of former years had developed in 1882 into the compulsory examination for admission to Associateship of the R.I.B.A., which brought at once in its train the coaches and crammers and unprofitable facts of all examinations, with the divided camps of those who hated and those who supported; those who believed and those who denied; Memorialists, and Societies for the Propagation of Registration Bil's; and we were all by the ears with a new system and other standards erected among us, to be approved or disapproved as our temperament leads us, but necessary to be acknowledged and dealt with as with existent facts. Exactly five years ago your past President, Mr. Stokes, addressed you from this Chair, and the burden of his words was this—that systematic teaching had become a *sine qua non*, that we should memorialise the Institute either to undertake this teaching itself, or to help us to do so: the result of which memorial was the handsome grant made by the Institute to us as an educational body—this function of education remaining with us. This grant was made and has been continued in a broad and liberal spirit, despite the controversies, not only among the profession at large, but among our own ranks, as to its policy; no conditions have been attached by the Institute to our acceptance of its bounty; and we undertook the reform in our system with a will. . . . Now, gentlemen, I touch upon the pith of my Address to you to-night, viz., shall our course of study acknowledge these examinations and aid in preparing for them; or shall we stand aside on the neutral ground of giving a good and thorough architectural education, *not* of a nature to be best tested by examination alone? Or, again, shall we oppose these new tests of a merely stereotyped efficiency by formulating our scheme on different lines, and with an intentional disregard to the standards and arrangements of the Institute Examiners? I hope I shall have you with me when you have heard the arguments for the resolution at which your Committee have arrived, and in delivering my message I should like to make my own position clear, having myself been a Memorialist, and holding still every jot and tittle of the beliefs that that body strove to make clear, differing only from it in its final and exaggerated antagonism to the Institute. The world of education has, as we all know for years, been passing through the fire of examination, and yet Moloch is not appeased; yet upon all sides we hear that the test has not proved itself the purifying medium and final court of appeal that a sanguine generation supposed it. It is notable that the Institute has only come in at the finish, lighting its torches when others are putting out or trying to assuage the flames. I have a certain measure of real hope that before many years are out the most eager advocates of architecture by examination will have found that no form of diploma, no corollary of significant letters, will in any way advance the cause we have all at heart; but that these weighty degrees may even prove something almost akin to a burden upon their bearers and an imposition upon the public, our employers. . . . Nevertheless I know well that our modern world will never more be persuaded to run its appointed course off its chosen rails

of degree and diploma—the examination in some form or other we shall always have with us; and to some natures, to some types of mind, it may possibly be not only necessary, but expedient. It seems to me that we must admit this necessity, and must acknowledge the dangers of this modern tendency, and must arrange both our own scheme of life and the Curriculum of the Architectural Association accordingly. Whatever be our views of the effect, helpful or hurtful, of organised examination, it exists at Conduit Street—a positive institution, a factor in the making of the career of a large body of aspirants to our calling and to the life-work which it involves. Critics, memorialists, societies, may fret as they will—none of our cries has effect upon the one fact that the examination exists and is popular; as matters go at present, whether for good or for evil, an ever-increasing body of candidates press in. . . . Now the only way in which we can combat the examination evils—the cramming, the ill-digested knowledge, the triumph of superficial facility over the slower strength of original thought, of mere curriculum cram over artistic research; the only way in which the examination itself can possibly be made to serve a useful end is by the provision of an adequate, thorough, and intelligent education for the many-sided calling of an architect, which may be undertaken both before and coincident with the practical training of pupillage—which may be thoroughly assimilated and solidly acquired, and which shall maintain as its standard and its keynote that “cramming shall not be.” Shall we refuse our aid to the student who is entering the profession by an honourable road, recognised by the period in which we live? Shall we tell him to prepare himself as best he may, but that we know nought of examinations and their needs? Let him seek a crammer that the victim may be decked for the altar! If we do this I say that we lay down our charter of education; if we do this we have no longer a right to our standing of fifty years. We are here to teach of truth and beauty and knowledge; the better we can do this the less harm can come to the world from the deadening grind of the treadmill. The more we can tempt to our teaching, the more freed men there will be for the teachers of learning to come. We have so often agreed upon the main needs of an architect's education that it is enough to restate them concisely: (1) That the system of pupillage or apprenticeship is good so far as it goes, but that it does not go far enough. (2) That it should be supplemented by systematic training by skilled instructors. (3) That that training should be directed to stimulate the artistic faculty—to order the imagination, to give the necessary practical as well as theoretical knowledge in all the accessories of the craft; in short, should consist of work in studio, lectures, classrooms, and in workshop. Such being the general statement of the views to which much discussion and experience have brought us, it seems unnecessary to amplify or to repeat the arguments which we have both heard and read so often during the last decade. Four years ago, when your past President, Mr. Baggallay, explained our new scheme to the Institute in an Address full of insight and force, his chief point was conveyed in the words, “We believe students want a course which will lead them ‘up to your examinations, and we believe they are willing ‘to pay a modest sum for such a course.’” The Committee have accordingly decided to bring classes and studio work into line with the requirements of students for the examinations. Such students will find all their needs fully considered and provided for. The Institute has met us halfway, and altered the dates of its summer examinations, both intermediate and final, to suit our classes. At the same time we leave it to the free will of our students to enter for the examinations or not, as they think fit; and we continue a goodly number of classes which are quite beyond examination requirements, but which we recom-

ment to every earnest student who desires the best and fullest instruction in the matters of his art which lie within the scope of a teacher.

Mr. Carøe made also the astonishing statement that a beneficent County Council, sitting in Spring Gardens, contemplates the formation of a School of Architecture to be partly maintained by the ratepayers of London, in opposition to the educational courses of the Architectural Association, which the London County Council Committee on Technical Education describe in a recent report as work carried on "tentatively," or which "may" "at any time fall to the ground." But ratepayers who, for the sake of peace and quiet, consent to an annual sacrifice at the shrine of St. Bumble are known to turn, like the traditional worm, at most unexpected moments; and conscious that there is now a House of Commons which has not entire confidence in the proceedings of that Saint, they may tell the supreme tribunal how far they are prepared to open their pockets; and enquire, perhaps, whether clergymen, barristers and solicitors, physicians and surgeons, have not as much right to be technically educated at the public expense as architects and handicraftsmen. Nevertheless a significant intimation in Mr. Carøe's Address, which seems to indicate that the possibility of municipal competition has occupied the attention of his Committee, is worth noting. It is as follows:—"Thus we have remodelled our teaching, forming some of it anew, making some of it continuous of our happiest traditions of self-help and mutual aid. Some of us are prepared to go further and to think it wisdom to consider earnestly if we may not enlarge our borders of usefulness by opening our schools to others outside our elected members. A sub-committee has, in fact, reported in favour of this view, subject, of course, to very necessary reservations. In enlarging upon it I should say that I am fully aware much may be forcibly said upon the other side, and I bind no one by giving you my own deliberate conclusions. May we not offer our educational advantages (let us say) to the engineer and the builder, while our social privileges and association should remain our own, and need in no way be touched by this proposition?"

The Durham County Buildings Competition.

The following letter was addressed, on the 30th ult., to the Clerk of the County Council of Durham, and its receipt acknowledged, on the 1st inst., by the Clerk of the Peace of that county:—

SIR,—The attention of the Council of the Royal Institute of British Architects has been called to circumstances connected with a competition recently promoted by the County Council of Durham for the erection of county buildings; and they have had before them both the paper of "Instructions to Competing Architects" and a

large amount of correspondence on the subject, more particularly with reference to the treatment accorded to Messrs. Cooksey & Cox, architects, whose design was placed first in this competition by a duly appointed assessor, and who appear to have kept within the terms of very stringent conditions issued to competitors.

The Council of the Institute, though not unprepared to recognise that the Durham County Council may be acting within strict legal rights and according to the letter of the printed "Instructions," cannot allow the occasion to pass without expressing deep regret at the course which they are informed is proposed to be taken by the Durham Council in depriving Messrs. Cooksey & Cox of the execution of their design, to which they appear morally entitled, whereby great injustice must result to them; a course, moreover, which must tend in the future to discourage architects of repute from submitting designs in competition.

The Council of the Institute, at their meeting held on Monday, 28th instant, directed us to convey this expression of regret to the County Council of Durham; and, in begging you to lay our letter before them, we have the honour to remain, Sir, your obedient servants, WM. EMERSON, *Hon. Secretary*; WILLIAM H. WHITE, *Secretary*.

Artistic Furniture and Illicit Commissions.

Mr. J. S. Henry, Artistic Furniture Manufacturer, of 287 to 289, Old Street, London, E.C., has recently offered to a few of his friends "exceptionally good terms in respect to introductions" "you may be able to send me for supplying" "artistic furniture to your clients." Mr. Henry is prepared to "quote prices to allow of an agreed" "upon profit"; and he adds, in the choicest Old Street, E.C., vernacular: "Upon your client presenting your card to me I shall be most happy to conduct *them* round my showrooms and to give *them* every attention for our mutual advantage." There would of course be no harm in issuing such a circular to furniture brokers and others of Mr. Henry's acquaintance, but when he deliberately sends it to members of the Royal Institute of British Architects he offers—not an insult, for that is out of Mr. Henry's power, but an impertinence which is likely to be resented; and, in fact, has been resented by those who object to receiving circulars of the kind even from the most ignorant artists in furniture. Before Mr. Henry next attempts to conduct an architect's card and the said architect's client through his showrooms perhaps it may save his time to be informed that Fellows and Associates of the Institute subscribe to a solemn Declaration that they will not accept any trade or other discounts, or illicit or surreptitious commissions or allowances, in connection with any works the execution of which they may be engaged to superintend; and that consequently they

are likely in future to avoid Mr. Henry and his showrooms as much in their own as their clients' interests.

Mr. Charles Fowler [F.] and the Statutory Board.

At a meeting, held on the 25th ult., of the Statutory Board of Examiners, Mr. Fowler stated that he felt compelled to resign, though with much regret, the office of Chairman, which he had held since 1884, his membership of the Board dating from 1869. Professor Roger Smith was consequently requested to act as Chairman, and Mr. Lacy W. Ridge as Deputy-Chairman, during the remainder of the official year. A resolution was then entered on the Minutes as follows:—
 "That the Board, in receiving, with great regret, from Mr. Charles Fowler his resignation of the Chairmanship, desire to express their high appreciation of his services on the Board for a period of twenty-six years, and more particularly of the energy, efficiency, and urbanity shown by him during the eleven years that he has conducted the work of the Board as Chairman."

The late Harry G. W. Drinkwater [F.].

The following obituary notice of Mr. Drinkwater is contributed by Mr. Henry Lovegrove [A.], who enjoyed a long and intimate friendship with the deceased:—

Harry George Walter Drinkwater died suddenly at Wokingham on Sunday the 13th ult. in his 52nd year. He had had a stroke of paralysis in April last, but partly recovered, and was able early in the month of October to go with his assistant to Wokingham on professional business, when he was seized with another attack which proved fatal.

Drinkwater was articled to Mr. Bramwell, of Broad Street, Oxford, and about the year 1867 he came to London as assistant to the late George Edmund Street, R.A. In 1873 he gained the Royal Academy Medal for measured drawings of the tomb of Aylmer de Valence in Westminster Abbey, having a few years before been awarded a Silver Medal by the Institute for measured drawings of Ifley Church, near Oxford. On leaving Mr. Street he started practice in Oxford, where his family had resided for some years, and carried out in and about that city many important works, including the theatre, a bank in Cornmarket Street, and an infirmary at Woodstock. He was for many years churchwarden of St. Philip and St. James, where his funeral service was performed in the presence of many sorrowing relatives and friends. He took the highest honours in Freemasonry in the province of Oxford, and took part with the writer and others in starting the "Hiram" Lodge in London.

Drinkwater was elected a Fellow of the Institute in 1882, and had served on the Board of Examiners since 1889. At a meeting of the Board on the

31st ult. reference was made to his decease, and the following resolution passed:—"That the Board feel deeply the loss they have sustained by the death of Mr. Drinkwater, who for many years had given such active and valuable assistance as an Examiner, and they desire to express to Mrs. Drinkwater their high appreciation of the services he rendered to the Board in the conduct of the Examinations."

The late Thomas Cundy [F.] and the late E. P. Loftus Brock [F.].

The first column of *The Times*, 6th inst., contained announcements of the death of Mr. Cundy and of Mr. Loftus Brock, F.S.A. The former, who died at Brighton on the 5th inst., was elected a Fellow in 1857, his proposers being Professor Donaldson, Philip Hardwick, and his father. He had served on the Council of the Institute, and taken an active part in the work of the Architects' Benevolent Society. Mr. Brock, who died on the 2nd inst., and whose fatal illness began only a short time ago, was elected a Fellow in 1882. He succeeded to the practice of Mr. Edward Habershon, who retired in 1879, having been his partner since 1865, and the pupil of the Messrs. W. G. and E. Habershon as early as 1851.

The Manchester Society's Conversazione.

The annual conversazione of the Manchester Society was held on Friday, the 1st inst., at the City Art Gallery, Mosley Street. The guests, among whom were Sir E. Leader Williams, Dean Maclure, Dr. Ward, Dr. Hopkinson, Messrs. T. de Courcy Mead, W. Goldthorpe, Leo Grindon, and Elias Bancroft, were received by the President, Mr. John Holden [F.]. The collection of architectural drawings on view was contributed chiefly by members of the society and other architects in and around Manchester. There were also several interesting exhibits. The autumn exhibition of pictures and the permanent collection were on view in the upper galleries, and an amateur orchestra gave a selection of music during the evening.

Additions to the Library.

The Institute is indebted to the courtesy of Mr. J. Douglass Mathews [F.], chairman of the Guildhall Library Committee, for the presentation of Dr. Sharpe's important work *London and the Kingdom: a History derived mainly from the Archives at Guildhall, in the custody of the Corporation of the City of London*, the aim of its author being to go over all the recorded instances in which the City of London interfered directly in the affairs of the kingdom [London: Longmans, Green, & Co., 3 vols.]. This work has been printed by order of the Corporation under the direction of the Library Committee. *Ein Proportionsgesetz der antiken Baukunst und sein Nachleben im Mittelalter und in der Renaissance*, by G. Dehio,

has been received from the publisher [Strassburg : Karl J. Trübner].

A delightful book has been recently acquired for the Library in George Sandys's notable account of his travels in the East, entitled *A Relation of a Journey, begun A.D. 1610, in Four Books, containing a Description of the Turkish Empire, of Egypt, of the Holy Land, of the remote parts of Italy, and islands adjoining*. This is a copy of the seventh edition published in 1678: the first edition was published in 1615. Two works of a distinguished Oriental scholar of last century, Claudius James Rich, have also been added to the Reference Library: these are a *Narrative of a Residence in Koordistan* and *Narrative of a Journey to the Site of Babylon in 1811, with a Narrative of a Journey to Persepolis* (taken in 1821), and both were published subsequent to Rich's death, and were edited by his widow, the first appearing in 1836, the latter in 1839.

Mr. E. Boardman [F.], architect of the recent additions by which it has been possible to utilise Norwich Castle for the purposes of a museum, has forwarded a monograph on the opening of the museum containing numerous illustrations. Mr. Langton Cole [A.] has presented a pamphlet written by his father, Mr. J. J. Cole, entitled *The People's Stonehenge*, containing several excellent illustrations.

The *Proceedings of the Twenty-Eighth Annual Convention of the American Institute of Architects 1894* contain the following papers:—

Modern Style founded on Ancient Greek Architecture. By Russell Sturgis (p. 84).

The Evolution of American Architecture. By J. W. Yost (p. 94).

Objective and Subjective. By Louis H. Sullivan (p. 121).

Travelling for Architectural Study. By F. M. Day (p. 135).

Travelling Scholarships. By R. W. Gibson (p. 141).

High Buildings and Good Architecture. By Thomas Hastings (p. 146).

Skeleton Construction and the Fire Department. By T. M. Clark (p. 150).

The Wind Pressure in Tall Buildings of Skeleton Construction. By W. L. B. Jenney (p. 153).

Concrete Construction—its Practical Application. By E. L. Ransome (p. 183).

A Few Words about Acoustics. By E. G. Lind (p. 194).

As no index is given in the *Proceedings*, the above table of contents may be found useful by readers desirous of referring to any of the Papers.

The following publications have been received from their respective Societies: the *Journal of the Sanitary Institute* (vol. xvi., part 3); *Proceedings of the Institution of Mechanical Engineers* (April 1895); *Proceedings of the Society of Antiquaries* (vol. xv., no. 2); *Collections of the Surrey Archaeological Society* (vol. xii., part 2); *Memoirs and Proceedings of the Manchester Literary and Philosophical Society* (containing the Annual Report of the Council); *The Geographical Journal* (vol. vi., nos. 4, 5); *Annual Report of the Dundee Institute of Architecture*,

Science, and Art; and the *Annual Report and Syllabus* of the Birmingham Architectural Association.

The October quarterly part of the *Journal of Indian Art* (vol. vi., no. 52), containing articles on *Dada Haris Well, Mosque, and Tomb, Ahmedabad*, by Mr. John Griffiths, and *Pottery and Glassware of Bengal*, by Mr. T. N. Mukharji, has been received from the publisher (W. Griggs, Elm House, Hanover Street, Peckham, London). Parts 8 and 9 of *Der Formenschatz* have also been sent by the publisher (Georges Hirth, Munich and Leipzig) through Messrs. Williams and Norgate. The excellence of Mr. Hirth's series of interesting reproductions is more than maintained in these later parts. It should be noted that the October number of the *Engineering Magazine* contains a short article by Mr. R. Phené Spiers entitled "Architectural Students' Work Abroad."

Calendars of the University College, London, and of the City of London College, and also *The Edinburgh University Calendar*, for the Session 1895-96, have been received from their respective institutions.

REVIEWS. XXXII.

(90)

THE LONDON BUILDING ACT 1894.

The London Building Act 1894, with Appendices containing Statutes, other than the Building Act, still in force and affecting Building Operations, also the Bye-laws, Regulations, and Standing Orders of the London County Council and of the Commissioners of Sewers of the City of London. With Concise Notes and Cross References. By William Russell Griffiths, J.L.B., of the Inner Temple, &c., and Francis W. Pember, M.A., of Lincoln's Inn, &c. 8s. Lond. 1895. Price 12s. 6d. [W. Clowes & Sons Limited, 27, Fleet Street, E.C.]

The Law regulating Streets and Buildings in the Metropolis under the London Building Act 1894, and other Metropolitan Statutes, together with the Standing Orders, Regulations, Bye-laws, Forms, &c., of the London County Council and of the Commissioners of Sewers of the City of London. By R. Cunningham Glen, M.A., of the Middle Temple, &c., and Arthur A. Bethune, of the Inner Temple, &c. With Explanatory Diagrams by Alfred Conder, F.R.I.B.A., District Surveyor for Woolwich. 8s. Lond. 1895. Price 20s. net; postage 6d. extra. [Knight & Co., 90, Fleet Street, E.C.]

The experience which we have already had of the new Metropolitan Building Act is quite enough to prove that its interpretation is in a great many respects by no means easy, and that for years to come we may expect the practitioners of forensic artifice to be busily engaged (if a practical man may speak plainly) in making its meaning perhaps only more obscure. No one need desire to dispute the fact that the municipal reformers in the London County Council were animated by the best intentions in their efforts to improve the regulation of building operations; and no doubt they were also honestly bent upon simplifying to the utmost the work of administration;

but they will probably themselves acknowledge that to a not inconsiderable extent they have failed—that much of what was important in their proposals had to be abandoned during the process of Parliamentary investigation, and that much of what was left became day by day more and more confused. Nevertheless, the Act, as it now stands, is, on the whole, a beneficial measure, and may serve its purpose for a sufficiently long time, with the help of that occasional mending which takes the form of acceptable judicial decisions on doubtful points. The incident is not yet ancient history when a bewildered Judge of eminence, in dealing with the Building Act which has recently passed away, so completely lost patience at last as to exclaim indignantly, “The builders built it, and let the builders explain it!” It seems not unlikely that before long learned successors will have rather to say, “The builders, unfortunately, did not build this new Act, and, therefore, there is no one at all who can explain it!” But be this as it may, it has to be acknowledged as a fact that the community of trained managers of building affairs, who bear the highly respected name of “the architects,” not only have not been the framers of the new law, as most people will think they ought to have been, but are expected to submit their interpretation of its meaning to the judgment of an altogether alien profession. That is to say, the lawyers, who took the supreme command forty years ago, retain it still. Prior to the year 1855, there existed a purely expert court of three architects for everyday administration, called “the Official Referees,” and their directions carried all the weight of judicial decisions, but for one apparently harmless and benevolent arrangement whereby they were provided with a legal assistant in the person of a “Registrar,” endowed with the qualifications of a barrister. True to his nature, however, as a fountain of all knowledge, this Registrar, in course of time, assumed the dignity and powers of a controller, and declined to “register” what he very excusably failed to understand, so that there was a deadlock. Referees and Registrar were therefore eventually both bundled out, and their jurisdiction transferred at haphazard to the Metropolitan Board of Works and the Police Courts—an objectionable system which is still retained in spite of a thousand protests, and retained with every likelihood of being continued as long as the building world of London will submit to it. Thus it is the Police Magistrate who is master of building administration, and by no means the architect. True, there are District Surveyors, and they are generally supposed to be monarchs of what they survey; but their monarchy in difficult circumstances is very much akin to that of the police constable on his beat, although with this difference, that the constable must not be “interfered with,” whereas the surveyor may be lawfully

resisted with tooth and nail. It is true also that there is a “Tribunal of Appeal,” but it has to do with property agency alone and not with structural building, and is constituted accordingly. On the whole, therefore, architects must be content to face for another generation the element of legal ascendancy in full force, and must consequently have bulky “law books” for reference. The two treatises now before us are such law books, and no one can glance through them without being led, at any rate, to thank the authors for these elaborate results of their patient and intelligent labour.

The general scheme of both books is the same, and the mode of treatment is the same: the one is larger in bulk than the other, and of course contains more letterpress; but most plain men of business will probably think the smaller volume quite large enough, and of sufficiently alarming aspect. We need only say, however, that this is merely because they are law books—austere and grim by nature, and the reverse of light reading by necessity. Speaking in general terms, what they supply is first, of course, the text of the new Building Act in detail; secondly, the text of such portions of other Acts of Parliament as are still collaterally in force; thirdly, the By-laws and the like of local governing authorities; and fourthly, and chiefly, current notes of legal explanation and citations of Cases decided by the Courts (sometimes with eyes open and sometimes with eyes more or less shut) which constitute “the law” for the moment upon doubtful points, arising of course under the old *régime*, but still applying to the new. A carefully compiled index is appended to each work, and something like an estimate of the painstaking of the authorship may be formed from the fact that in the smaller book this index occupies thirty pages, and in the larger one nearly one hundred. It may also be noted that in the former the references to Cases amount in number to about two hundred and fifty, and in the latter to not much less than eight hundred. As regards, again, the voluminousness of the notes, it is only necessary to observe that the greater bulk of the second treatise is manifestly due almost entirely to the greater copiousness of these valuable memoranda. At the same time, it is only fair to remark that in the title page of the smaller book the conciseness of the notes and cross references is apparently made a special merit.

It may be assumed that beyond the strictly legal limits of their undertaking the authors in both instances do not pretend to go; and it is on this ground that, with all possible respect to them, one may express a sort of hope that architects and builders, although thinking it desirable to possess one or other of the books, or even both, may in practice find themselves largely relieved from the dismal necessity of studying them. Law is law, no doubt; but building is building, and is

seldom, if ever, to be aided or comforted by legal wrangling. In other words, the building operations of London are best controlled by the plain common sense of practical constructive experts; that is to say, by public "surveyors" of sound experience and prudent judgment. Those who know best will always tell us the most emphatically that whenever Building Act business goes beyond the District Surveyor it goes into trouble. What the building public want is a perfectly qualified and trustworthy public expert with very much of a free hand, not a rigid, metallic martinet under "gloriously uncertain" law. The thousand-and-one little questions of rule that are unexpectedly cropping up day by day in the actualities of "bricks and mortar" demand for their rational adjustment a rational rather than legal mind, a discreet, discriminating, elastic, compromising intelligence, knowing the reason why, and satisfied with a fair and honest recognition of that reason. At the same time the principle cannot be ignored that the *lex scripta* is a contract entered into between individual interest and public interest for the eventual benefit of the one as much as the other. All that the building world asks for is that this contract shall be so dealt with and so interpreted on both sides honourably and liberally.

Whilst recommending these useful treatises to the consideration of all concerned in the more important business, one cannot help expressing a little astonishment at the way in which the general building work of London is daily carried on by the trades in ignorance of the most common directions of the law. Everybody above the rank of an excavator knows that there is a Building Act to be complied with, and yet scarcely any one belonging to the operative classes seems to have ever seen it, except, perhaps, in the form of an unread appendix to a price-book. Persons of ordinary intelligence would take it for certain that the foreman of even a small job, for example, would carry a copy. On the contrary, the assertion may safely be hazarded that not one in a hundred of those practical men ever takes the trouble to think of it. The anxiety which this thoughtlessness gives to the official mind is often very great, of course; but what is more serious is the constant risk of unintentional and undiscoverable mistakes which so very little extra knowledge would so very easily prevent. The voluminousness of the new Act will probably be found to encourage this condition of things; and if the suggestion may be made without giving offence, why should not some of the younger or more ambitious of the District Surveyors set to work at once upon a free translation of the essence of the law into the form of a concentrated compendium or table of its common rules and practice, which the artisan could keep in his pocket with his pipe? Or, again, might not the County Council, or the District Surveyors' Association, establish a little examination for

clerks of works and foremen, if no more, on which to give certificates of competency in this really useful branch of knowledge?

ROBERT KERR.

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GOTHIC MASONRY.

Rational Building: being a Translation of the Article "Construction" in the Dictionnaire raisonné de l'architecture française of M. Eugène Emmanuel Viollet-Le-Duc. By George Martin Huss, Architect, Member of the Architectural League of New York. Large 8o. London and New York, 1895. Price 12s. 6d. net. [Macmillan & Co., Bedford Street, Covent Garden; and New York.]

The question has often been asked why there is no English translation of the *Dictionnaire raisonné de l'architecture française*, and the answer has usually been, that anyone who really appreciated Viollet-Le-Duc would take the trouble to read him in the original—indeed, would prefer to have his own words just as he wrote them. But the high-pressure state of existence common with American architects probably does not leave them time for reading in any language except their own, so with a most praiseworthy desire that his fellow-countrymen should not thereby be debarred from the enjoyment of a masterpiece of architectural literature, Mr. Huss has provided for their special needs an American version of one of the longest and best articles in the *Dictionnaire*, that entitled "Construction." This has always been a favourite one among serious students, and has been rightly regarded as the best existing treatise on the science of Gothic masonry. More than this cannot fairly be claimed for it, and the title given by Mr. Huss to his translation is somewhat fanciful, if not positively misleading. French Gothic, too, is almost exclusively its subject, for although Viollet-Le-Duc, with a breadth of view somewhat unusual among French artists of his day, had extended his researches so far as to be able to mention some English developments, these notices are comparatively brief and unimportant. The fact, however, that the work practically treats of nothing but French architecture will probably not be found any detriment to it in America, where the whole course of contemporary architecture follows French in preference to any other leading; it is therefore very likely that Mr. Huss's venture will meet with good success among his own countrymen, even if it should not succeed in supplanting the French editions amongst ourselves.

As to the style of the new version the translator attempts to take the word out of the critic's mouth by his confident assertion in the Preface that "great care has been exercised to obtain nice distinctions of meaning; the full force of the French idiom has been seized upon; and the endeavor has been to make this work appear as little like a bald technical translation as was

"consistent with the incisively keen remarks of 'the gifted author.'" Whether this is actually the case is perhaps a question for the reader to decide. But the work of translation has certainly been carefully and conscientiously performed, and, taking the result as a whole, it gives a very fair interpretation of the sense of the original. In many instances, however, the translator might be readily pardoned if he had not been quite so literal. "Broken arch" and "divided arch" are very uncomfortable synonyms for "pointed arch," as is also "full-centered" for "semicircular"; whilst the constant occurrence of such phrases as "It is there that one can always recognize," "It is in the nave that one must admit," "But there is in that an attempt which," "The arches built in this way form," give an appearance of merely mechanical translation to a work which is in reality of a better class. What would be said to a schoolboy who should venture, as does Mr. Huss, to translate "*Cet ensemble présente une stabilité parfaite*" by "*This ensemble presents a perfect stability*"? Still, on the other hand, we may read of architects being "bothered" and "concerned" by constructional problems, which seems a straining of freedom to its limits.

All the original illustrations, which had so much to do with the favourable reception of the *Dictionnaire raisonné* in England, are repeated in *Rational Building*, though somewhat reduced in size, which in some instances takes away from their clearness. The type, unfortunately, is not an improvement on the original; it is not only smaller, but is rendered very unpleasant—at any rate to English eyes—by the tendency which the words have to run together, caused by the combination of narrow spaces between the words with wide spaces between the individual letters. "Metres" and "centimetres" appear to be more congenial to American readers than to English ones, for no attempt is anywhere made to give their equivalents in feet and inches. Possibly the time may not be long before we shall, by Act of Parliament, be compelled to employ the metrical system; but it may at least be hoped that when that time does come we shall be permitted to use more homely terms to express the new measures.

Several emendations of Mr. Huss's renderings have been suggested by Mr. R. Phené Spiers in a recent letter to *The Builder*, of which the most interesting relates to the "*tas-de-charge*," for which there is no accepted equivalent in English, even Professor Willis, who did so much towards clearing up and improving architectural terminology, using it in its French form. "Mr. Huss translates it," says Mr. Spiers, "a flat bed (p. 120), which gives no conception of its meaning. 'If he had put a 'flat bed or horizontal course' it would better have expressed the meaning; a term which might in course of time have been reduced to 'the pile' when speaking of a

"vault." In another place (p. 224) Mr. Huss gives for "*assises superposées formant tas-de-charge*," "courses piled up to form a support," which, again, is hardly a satisfactory translation. Possibly the term "springing-pile" might meet the case. A word seems to be wanted which is equally applicable where the same device is used in other arched constructions, quite independently of vaulting, as in an ordinary arcade; "vaulting-pile," besides being inappropriate to such instances, might easily be taken to mean a larger portion of the vault than is actually intended. This plan of building up several level courses of solid masonry above the capital, before the inclined voussoirs are started, is a sound method of construction worthy of more attention than it seems to have received. It has the great advantage of providing, in the direct vertical line of the pillar, a firm pier-shaped base for the superstructure, instead of leaving it, as is too common, merely balanced on an inverted triangle, often composed only of rubble, with a consequent tendency to bring awkward stresses to bear upon the haunches of the arches. Wherever ancient examples of this arrangement are found in England, they are almost invariably in works of the best period, and great ingenuity and artistic skill are often shown in reducing or "stopping" the hollows of the arch-mould, as they come down upon the "springing-pile," so as to leave as broad and solid a base as possible over the abacus. It is no doubt a great saving of trouble to the draughtsman to run the lines representing his moulded voussoirs right down on to the capital, but this always involves some reduction of the bearing-surface, and in many cases diminishes it very seriously.

On one constructional principle of considerable importance the advice given by Viollet-Le-Duc is directly opposed to the teaching of some of our most familiar text-books. Most of us have read, for instance, in our "*Rivington*" that large arches ought to be built "with blocks set in cement running through their thickness at intervals, so as to form a bond right through the thickness of the arch. Stone bonds may be used instead, cut to the shape of a voussoir. These bond blocks should be placed at the points where the joints of the various rings coincide. . . . Thick arches bonded throughout their depth are sometimes used for large spans." It is hard to reconcile these recommendations with the mechanical principles so clearly laid down by Viollet-Le-Duc. Writing of the later Romanesque architects, he says (quoting Mr. Huss's version):—

They had observed that the greater the section presented by the stones of an arch from the intrados to the extrados, the greater would be the disorder occasioned by the movement produced in that arch. They were not the first who had recognized that law. The Romans, before them, when they had large arches to raise, had been careful to make them of several rows of voussoirs, concentric, but independent of one another. The arches built in this way form,

as it were, so many rings, acting separately and preserving much greater elasticity, and therefore greater resistance, than in an arch of the same section built with one ring of deep voussoirs (p. 32).

It is interesting to note that this view of the theory of arches is the same as that held by one of the best English authorities on the mechanics of construction, whom, however, on account of differences upon other matters, an architect cannot now unfortunately even quote without the fear of incurring reproach from his brethren. But, even if Lord Grimthorpe be really an enemy, "*Fas est et ab hoste doceri*" is still a wise and true maxim, and there are few constructors who could not learn a good deal from the profound and ingenious author of *A Book on Building*, who, when discussing this particular question, says:—

It is well recognised by engineers . . . that the several courses of an arch ought to be independent; and though at first sight it looks weaker to unmechanical eyes, it is really stronger not to have long through bricks or stones from intrados or "soffit" up to the extrados or outside; because there can only be three bearing points in an arch or any section of it—two at the intrados and one at the extrados. And as this applies to each course of brickwork, an arch of many separate courses is so many arches, while one of the same thickness of "throughs" is only one arch (p. 152).

Some of the other advantages which are secured by providing for a certain amount of elasticity in masonry will be found mentioned in the article on "Construction" in treating of the size of stones and the thickness of joints. It is especially worth noticing this, because in England, just as much as in France, one continually sees buildings disfigured, and even seriously damaged, by the absurd modern craze of masons and clerks-of-works for producing the thinnest possible joints, often without any real mortar-bed at all. Through this pernicious system, ordinary settlements, which naturally occur in every building, instead of being harmlessly distributed and dispersed by the yielding of the joints, become sources of dire mischief, cracking and even shivering in pieces the most solid-looking work. There were very good reasons for using these "coarse" and "clumsy" joints, as they would be called now, which we find in buildings remaining sound and serviceable after the wear and tear of many centuries. Squeezability, though not generally regarded as an evidence of strength, is nevertheless, in the case of buildings, a most important element of strength and permanence.

Although *Rational Building* covers only a very limited field, and as a translation cannot be ranked with Mr. Bucknall's spirited versions of other works by the same author, yet its publication may have very good results, and certainly deserves a notice of welcome. It may become the means of making known the writings of Viollet-Le-Duc to a new generation, many of whom might otherwise grow up in ignorance of the most instructive and most stimulating lessons in architecture ever

offered to the world. It would be far better, indeed, that Viollet-Le-Duc should be known only by detached translations, like the present one, than that he should ever be forgotten or neglected. But it is greatly to be hoped that readers of this volume will not remain satisfied with only a specimen of the teaching of its great author, and will go on to a real study both of the other articles in the *Dictionnaire*, and also of the *Entretiens sur l'Architecture*. The former is by no means, as might perhaps be supposed from its modest title, only a text-book for the mediæval specialist; it really goes a long way towards being an architectural encyclopædia; while of the latter it may be said that anyone professing to take even the most general interest in architecture of any sort may be expected to be well acquainted with it. There are many other books by Viollet-Le-Duc which may also be read with much pleasure and profit, but these two, at least, have an importance which is far beyond being merely local or temporary: they abound from beginning to end with invaluable lessons for workers in every school and throughout all time.

It is impossible to mention Viollet-Le-Duc without being tempted to dwell on the extraordinary combination of talents which entitles him to be considered as one of the most remarkable men of this century; but his life and works have already been so graphically and sympathetically described in the pages of the *TRANSACTIONS*, by one who knew him well, that I cannot do better than refer any readers of *Rational Building* who may desire to know more of the man to whom they owe so much to Mr. Charles Wethered's two admirable Papers.*

ARTHUR S. FLOWER.

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PRINCIPLES OF RATING.

The Principles of Rating, practically considered as they affect the Assessment of Railways, Docks, Tramways, Gas and Water Works, Coal and other Mines, Electric Lighting Works, Manufactories, and other Hereditaments; with a complete Digest of all the important Cases, including several Decisions not previously reported, a Collection of the principal Statutes, and the last Orders of the London County Session. By Edward Boyle, of the Inner Temple and of the South-Eastern Circuit, Barrister-at-Law, and G. Humphreys-Davies, a Fellow of the Surveyors' Institution and an Arbitrator under appointment of the Board of Trade. Second edition. Roy. 8o. Lond. 1895. 1100 pages. Price 25s. [William Clowes & Sons, Limited, 27, Fleet Street, E.C.]

The tendency of the amateur legislator towards Betterment, the taxation of ground rents, &c., is strong proof that at no period was it more necessary than at present to illustrate and enforce the sound principles of rating; and the passing of several new Acts and many new legal decisions

* See *TRANSACTIONS*, Vol. XXXIV. O.S. p. 210; and Vol. IV. N.S. p. 62.

since the first edition are additional reasons for this publication. The importance of the interests explained in this book is to some extent shown by its greatly increased bulk compared with that of the first edition, and by the large number of new cases reported. As the writers justly say in their Introduction:—

With the steady but sure tendency exhibited by local rates to increase in amount, the necessity for a correct valuation list in each parish becomes most important, while the enormous development which has in modern times taken place in industrial enterprise, and in the extent, magnificence, and value of our buildings—a development which appears to be going on at an increasing ratio—enhances the difficulty of solving the complex problems which present themselves in the valuation of such property (p. 1).

In this connection (if custom had not dulled our sympathies) we could not fail to be profoundly moved by the consideration of the increasing magnitude of the mass of humanity given over to hopeless, grinding poverty, to woes which the machinery of Guardians, Assessment Committees, and the like is designed to alleviate but cannot cure—a state of society surely undreamt of by the draughtsmen of the Act for the Relief of the Poor in the 43rd year of Elizabeth.

It is not to be expected that a book of the severely practical nature of this one should deal with the history of Poor-law legislation, but the surveyor may derive interesting information on this important social problem in a condensed form from some of the earlier Papers read before the Surveyors' Institution, such as Edward Ryde's *Parochial Assessments*, 25th January 1869, or Thorold Rogers's Chapter on the Poor Law in his *Six Centuries of Work and Wages*. Other early Papers of the Surveyors' Institution, and the discussions thereon, dealing with the rating of railways, machinery, and country mansions, present diverse views of the subject, which may be recommended to the notice of the rating surveyor who may not be familiar with them.

The association of a barrister and a surveyor in the production of this book has probably contributed to confer exceptional value upon their joint production. For the expert valuer must not only possess a special knowledge of the property he assesses, such as mines, machinery, railways, &c., but he must also be familiar with the circumstances and bearings of a great number of legal decisions; moreover, he must combine with this knowledge a long experience and a mature judgment, for the recorded decisions embody many subtle distinctions, and the ambiguity of some of them has in its turn given rise to fresh litigation. The obscurity of some of the clauses of Acts intended to amend previous ones has also been a fruitful source of dispute. But be the valuer never so expert, he will still be exposed to the vagaries of Assessment Committees, and an appeal from their decisions is very often unsuccessful. The unsatis-

factory state of the machinery of appeal is an old grievance, and on this the authors may be quoted as follows:—

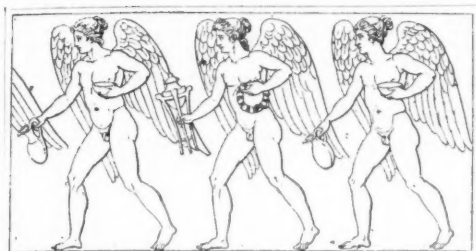
The dual object of the Act of William IV., as stated in the preamble, was "to establish one uniform mode of rating for the relief of the poor throughout England and Wales, and to lessen the cost of appeal against an unfair rate." That a considerable measure of success attended the attempt there can be no doubt; but that much remains to be done before the costs of appeals against rates are reduced within a reasonable compass must be readily admitted. The cost of an appeal to Sessions against small assessments is practically prohibitory, while in more important cases they act as a great deterrent to ratepayers seeking redress. It is therefore important that something be done to render the proceedings less cumbersome and costly, so as to enable both the ratepayer and the rating authority to obtain a judicial decision without incurring undue expense or risk (p. 119).

Many rating surveyors will agree with the remark of the writers as to exemption from rating: "The policy and fairness of granting exemptions of any kind may be questioned." In the practice of rating the legal and surveying elements are so intimately connected that a separate consideration of them here is, perhaps, invidious; but the examples of valuation may be specially commended for their practical character, sufficiently shown, among others, by the valuation of a coal-mine, a railway, an electric-lighting interest, docks, and a gas company. The various theories of rent as propounded by Adam Smith, Mill, and Ricardo, and their application, in the section "Application of the Theory of Annual Value," are very clearly explained.

The book is characterised by precision of thought and lucidity of style, and its comprehensiveness leaves little to be desired. Few rating surveyors have enjoyed the felicity of rating a lighthouse or the property of a foreign ambassador, but both these subjects are dealt with in these pages. The digest of cases is a summary of every rating decision for the last 150 years. Marginal notes of the years have been adopted in this edition, and are an improvement. The forms of returns, some of them new, are a useful addition. Those clauses of the Acts which affect rating are appended, and in these the portions repealed by the Valuation (Metropolis) Act 1869 are distinguished by being printed in italics. The index (and in indices there is a considerable range of quality) is very clear, and the marginal summaries to the text, which were not used in the first edition, greatly assist reference. A few of the conclusions drawn from the reported cases are perhaps open to doubt, but they afford so much room for difference of opinion that they need not be mentioned here.

The book is an example of careful and thorough work, and must convince the experienced reader of the knowledge and judgment of its authors. It may be recommended to the surveyor as an exhaustive and reliable book of reference on the subject which it treats.

JOHN LEANING.



ARCHÆOLOGY, HISTORY, AND ART.*

That a close relationship exists between Archæology, History, and Art can scarcely be questioned. Whence does this arise, and how and to what extent is it of value in connection with the actual practice of architecture? The connecting link, it is evident, lies in the continuity, the traditional character, of all art, and particularly of architecture. That which was declared in ancient times has no manner of interest for the engineer—*qua* engineer at least—for his work, both as to requirements and methods, is essentially of to-day; but for the architect, who is ever seeking to assimilate and reproduce in his work the spirit of the older masters, even when endeavouring to solve the very different problems that confront him to-day, the doctrine and practice of the ancients are of paramount importance. Of course this influence is one as to the value of which very different estimates will be given by different architects according to the style of work they are principally engaged in, and the manner in which they approach it; and it may be worth while for a little to examine the subject somewhat more closely. We shall endeavour, then, in the first place to analyse these three—Archæology, History, and Art—and to differentiate as clearly as may be between them, and thereafter consider on the one hand how far the influence of the two former is beneficial and of real value in connection with our everyday work; and, on the other, whether such influence is not by some allowed to preponderate to a hurtful extent, and even at times to a confusion of identity between the means and the end. It is neither desirable nor possible from the present point of view to differentiate very closely between Archæology and History. As a matter of fact, they overlap each other constantly, and in this connection are so closely interlinked that the one can scarcely be said to be complete without the other. Broadly speaking, however, it might be said that in the study of the past the one is concerned with monuments, the other with events; the one with the actual details and arrangements of the buildings, the other with the significance of these as made clear by the habits and actions of

the society of the time. The third term of the title, Art, is of course on an entirely different plane, and for purposes of comparison we may express it in its widest sense as the creation of the beautiful. Architecture, being that branch of art which for the moment more especially concerns us, I take to be the endowing with beauty of form and colour (not as something added but inherent) buildings whose primary meaning is the furnishing of man's requirements in the way of shelter. I naturally take the view of art as an actual occupation, not as a theoretical study, and the relationship between the terms of our title may then be put in a concise form by saying that art, from our point of view, is concerned with the design and erection of buildings in the present time; that the art in these buildings is a necessary and natural outcome and development of similar work in the past; and that archæology and history are the sciences by which we best arrive at a knowledge of such work. It will be understood, of course, that in speaking of architecture primarily as a fine art I have no desire to narrow its scope by excluding from its province the many phases of practical work which form part of our daily experience, or to minimise the importance of these. Such, nowadays, are necessarily and legitimately enough comprehended under the general name of architecture, the profession; but, in the first place, it must be remembered that it is only in so far as it is an art that architecture is differentiated from the work of the civil engineer and the builder; and in the second, that it is as such only that its relationship with these other studies comes into play.

In order to make our analysis still clearer, consider what I take to be the spirit in which the archæologist and historian, and what that in which the architect would approach, for the purpose of study, an ancient castle. To the first every stone, to the second every charter and record are full of interest; with much ingenuity and argument will they reconstruct from these the history of the place and the old-world life of the men who built it and lived within its walls. The mouldings are interesting because from them can be traced what local, what foreign, influence was present, with many other particulars bearing on the precise period of the building's erection. The sculptured stones are so much family history, and the ruder they are and the harder to decipher, the better. But for the artist, and especially the architect, the interest of the building is other than these: its plan, its design, characterised throughout by power and beauty, the manner in which the materials used produce their effect, the proportions of its solids and voids, its mass and outline—such are the points which attract his attention and compel his study. By him the mouldings are regarded for the beauty and character of their profile, for their scale to the materials and surroundings; the sculptured stones from the position in which they

* Being a portion of Mr. Paterson's Presidential Address to the Glasgow Architectural Association this Session.

are placed so as to give point and effect to the design. Now these diverse and various interests are each entirely praiseworthy and justifiable; they are even reconcilable, and may quite well be found in the same individual, but in their essence they are diverse and even antagonistic, for the one is the handmaid of science, and the other of art. In the lack of clearness on this point lies the danger. I need scarcely insist here that architecture, if from nothing else than its close dependence on construction, is bound to be of all the arts that most closely ruled by tradition. We can scarcely think of design apart from those symbols and formulae that have come down to us from the past. Further than that, I but repeat an opinion previously expressed by me in saying that the insistence on the traditional, the national, and even the local type constitutes at once one of the main interests and healthiest signs of a living architecture. But the traditional and archaeological points of view are totally distinct; and while the one makes for righteousness, the other, especially when its presence and influence are not fully recognised, is dangerous and generally hurtful. Under the guidance of the former (the traditional) we accept and make use of types handed down to us, happy to preserve the continuity of our art by employing such as are fittest and best able to express the modern requirements which we are seeking to satisfy; while we reject those that have no longer any meaning or which it is not possible to mould and adopt to present uses, seeking at the same time to preserve that nobility, directness, and singleness of aim which we find to characterise the best of the old work. From the latter (the archaeological) point of view, the scientific knowledge that a feature, a motive, is old, without any reasoned appreciation of its beauty or fitness to modern needs, is sufficient warrant that it should be reproduced. Hence the gargoyles which never spout, which would not in fact be allowed to do so; the battlements which shelter from no assaults because our protection is of the law and not by force of arms; the ponderous buttresses with no thrust to counteract; the temple porticoes which shelter no one, because they are not in any one's way; the sham gun-ports, and the oft-quoted turrets with no insides. All this is but science of a kind, dry-as-dust knowledge out of place, hurting and hindering the free development of an art, which, if it is to be of any use, must be living, reflecting the needs, the sentiments, the aspirations of the time.

Other manifestations there are which for praise or blame must be attributed to the historical or archaeological aim in art. Of such are the various eclectic schools of painting which have arisen, as that of Caracci and his followers in Bologna during the later sixteenth century, and the pre-Raphaelite movement in our own day, and all the various revivals in architecture, be they Gothic, Greek,

or so-called Queen Anne. These all, in a righteous spirit of revolt against, or complete denial of, any existence in the art of their day, set themselves more or less vainly to turn back the hands of the clock; instead of the spirit of generally unconscious receptivity and the single desire for beauty which should characterise the artist mind, they are fain to reproduce, with toilsome study and research, the work—and not infrequently there-with the very tricks and failings—of an alien race or long-passed-away period. Even the great Renaissance itself was not free from this reproach, for such I cannot but believe it to be; but the eager, living spirit of the time, with its new requirements, and the very greatness of the men who were its exponents, were stronger than their reverence for the past, so that, instead of reproducing, as they thought, the art of that earlier race on which their eyes were turned, they were in reality giving birth to a new and living art—an art of such vitality and flexibility that in spreading, and continuing to spread, among the nations it has received from each something of a national character. While to this (the archaeological) spirit we owe, therefore, in some degree the Renaissance, its action is specially manifested in one particular development of that movement—the publication of books on architecture by such as Vignola and Palladio. Vitruvius was their father. Of their children, especially in these latter days, who can tell the number? The canons of an art thus formulated as laws savour of the scientific standpoint and formalism, and are to be accepted, in detail at least, only under restrictions; but it is to be remembered that these were not a collection of arbitrary rules, but the summing up, so to speak, of the practice of the masters. Vignola's book, for instance, in which he lays down the proper proportions for the various Orders, and which has formed the point of departure for all similar works published since then, was not a compilation of arbitrary, self-evolved ideas, but the result of careful and systematic measurements of the best work of Rome and the Renaissance; and the aggregate results obtained therefrom and the work in itself thus measured were not produced by the application of hard-and-fast rules, but by the cumulated experience of a long line of great architects as to what was right and beautiful in proportion. That a column in stone is satisfying to the eye when its height is eight to ten times its diameter, a window-opening when it is in the proportion of two squares, is as certain (with many other "laws" of like nature), if as difficult to explain, as that in music the third, fifth, and octave are in harmony with the dominant. These, and such as these, are the data with which we produce our architectural design, as the notes of the scale a musical composition; and it is only when novel materials intervene, or in a particular situation, as it were, in a musical progression, that variations, even to

the extent of discords, are admissible and even admirable. To ignore and run counter to such generally accepted canons is naturally the easiest and consequently the most popular way to be original, but it is not always the most successful from an artistic point of view; for the student the archaeological standpoint, even in an exaggerated degree, is to be preferred.

In one department of the architect's work antiquarian knowledge finds its proper sphere—for which, indeed, it is indispensable—that of the restoration, whether on paper or in stone, of ancient monuments. The former is a branch of architectural study which is little prosecuted among us here, and that, in many respects, to our loss. Regarding the latter—the actual restoration to their supposed former state of ancient buildings which have fallen into a state of disrepair—the expediency thereof is a point round which argument has waxed hot, and upon which I do not feel disposed to enter. This much may be said, that whether restoration is right generally depends on the restorer; while from the theoretical point of view we, as architects, must consider a beautiful building to be a worthier object of contemplation than a dismantled and ivy-clad ruin. Even here, however, we have to dread that narrow scientific spirit in art in which knowledge so distorts appreciation as to recognise beauty in the work of one particular period only, and which did not hesitate within recent years to sweep away the exquisite Renaissance work of the sixteenth and seventeenth centuries in order to replace it with modern thirteenth-century work.

Thus far we have dealt almost exclusively with the dangers of the archaeological standpoint. That such do exist for us as architects is, I think, undoubted; but they exist only (as I would again insist) when there is confusion between the provinces of archaeology and art, and the former is put in a false position; when, although essentially in its nature a science, it is expected or unconsciously allowed to occupy the function of a creative art. That a building is old is not in itself an absolute guarantee that it be good in design, nor is it sufficient criticism of a modern building that it is or is not correct in its style.

The position in this respect has greatly changed within recent years. With some of our younger students the tide of reaction seems at times to set too strongly in the contrary direction, and to set at naught not only archaeology but tradition and the fundamental canons of the art. However this may be, it is scarcely possible now to return to the state of feeling of a generation hardly yet passed away, when not to design in the particular style of the revival in vogue—and that in the minutest details—was to be anathema, was to put oneself outside the pale and render oneself unworthy of the name of architect. Yet even to-day, as the frequent repetition of old features rendered

meaningless in modern work shows, the confusion between the two principles is by no means so uncommon that it can afford to be ignored. But freed from this misconception, accepting archaeology for what it is, as a scientific aid to study, and associating with it its necessary complement of history, it is difficult to imagine any subject more worthy the attention of the architectural student, and this for several reasons. In the first place, his professional training gives, or should give, him a special aptitude for and interest in such work. His interest in building to-day almost necessarily, and apart even from the traditional aspect of his art, carries with it an interest in the work of a similar nature in earlier times; while his appreciation of the possibilities and difficulties of planning, his knowledge of construction, and his power of sketching, measuring, and laying down buildings on paper, are all essential qualifications for the work. The more we study intelligently the works of the past, the more we shall appreciate the intricacy, the nobility, the power of that art whose watchwords are "Design with beauty, built in truth." It is only when we approach such works on all sides and in detail that we thoroughly learn to appreciate them. It is possible, of course, to study a building purely as regards its artistic aspect; but it is evident that if we go to it with some knowledge of its history and inner meaning, and with the desire to learn more from written records and constructional details, our interest will be increased all round, our knowledge rendered more exact, our first inferences as to the meaning of its arrangements and details confirmed or corrected, and our appreciation of its beauties heightened. The scientific knowledge, however unimportant from our point of view in itself, will bring in its train a deeper and fuller artistic insight. We shall be like Saul, who, seeking his father's asses, found a kingdom. Hence the value of lectures, which it were surely impossible to follow without an immensely increased appreciation of the interest surrounding those works of the past the story of the origin and growth of which, with the manner of life of their old-time builders and inhabitants, is vividly portrayed. Hence the advantage of studying beforehand all that is to be learned of the archaeology and history of ancient buildings. It does not matter a rushlight from the point of view of our actual work to-day whether this bishop or that founded a particular aisle, whether a chapel was really fourteenth-century work, or was carried out a century later in the preceding style, so as to be in harmony with its surroundings. That we should know with certainty if the founder's tomb is in existence or not, or even that we should be able to say that a moulding is early, late, or transitional, will not influence one iota our powers of plan and design; all such knowledge is extremely interesting and

useful no doubt in its own sphere, but its true importance to us is that in gaining exactness of knowledge as to such details as these we are bound to increase our knowledge of the work itself, of the constructional difficulties and the means by which they were overcome and rendered unexpected points of beauty, of the infinite variety, the enveloping harmony, and the crowning beauty of the building which through years, and maybe centuries, of growth ultimately reached the completed form in which we see it. Therefore, while I have sought, according to my light, to place history and archaeology in their true relation to art, while I would exercise caution as to what I believe to be a hurtful confusion as to their powers and issues, I would strongly recommend them as most fascinating, most profitable, and well-nigh essential subjects of study for us all. By such studies we shall not only increase our interest in our art, and enhance our power of design, but from our greater knowledge of the difficulties and appreciation of the beauties of old work we shall of necessity learn a deeper reverence for the architects, known and unknown to fame, whose thoughts and very lives have thus through the long centuries been recorded in stone. So also shall we the better recognise the responsibility of leaving behind us in our turn, and according as opportunity is offered us, the monuments of to-day and of ourselves to form the study of the historians, archaeologists, and architects of future generations.

Glasgow.

ALEXANDER N. PATERSON.

NOTES, QUERIES, AND REPLIES.

"Drain" and "Sewer" in Law.

Several decisions on the much-disputed question of the distinction in law between a drain and a sewer for the purposes of the administration of the Public Health Acts will be found reported in the last volume of the JOURNAL; and a learned contribution on the subject from the author of the treatise *Validity of Contracts in Restraint of Trade* is now given.

From ARNOLD B. JOLLY, B.A., Barrister-at-Law—

The problem as to what constitutes a drain and what a sewer, for the purposes of the Public Health Acts, has not yet been satisfactorily solved. The importance of the distinction is obvious: a sewer, unless made for profit, vests in and is *repairable by the local authority*, whereas a drain is *repairable by the owner of the premises* whose sewage it carries off. Under these circumstances, one would have thought it an easy matter for the Legislature to have fixed a final and satisfactory definition for these two words. Unfortunately, however, the Public Health Act 1890 appears to have been drafted by some person who was ignorant both of the previous Acts and of the decisions thereon. The result of this legislative bungling

is that the Judges have been unable to arrive at any clear conclusion as to the construction of the Acts. Thus we find Wills and Wright, J.J., in January 1895 throwing doubt on a decision which they themselves had given only a year before, while Cave, J., three months later, confessed that he was entirely unable to understand the recent judgments of his brethren Wills and Wright.

Prior to the Public Health Act 1890 the law on the subject was comparatively clear. By section 4 of the Public Health Act 1875 a drain is defined as meaning "any drain of and used for the drainage of one building only on premises within the same curtilage" (*i.e.* fence or boundary). A conduit which does not come within the above definition is a sewer. Thus, where two houses (not within the same curtilage) have a common conduit, this conduit ceases to be a drain and becomes a sewer as soon as it receives the sewage of the second house, even though it is laid in private ground (see *Travis v. Uttley*, 1894, 1 Q.B. 233). The definition of a drain under the Metropolitan Management Act 1855 is precisely the same as in the Public Health Act, but with this addition, "and shall also include any drain for draining any group or block of houses by a combined operation under the order of any vestry or district board." This was, no doubt, intended to meet the case of a group of houses situate some distance from a main sewer, where, instead of constructing a separate drain from each house, it was more convenient to carry the sewage of all the houses in a single conduit. In such a case it is rather unfair that the drain, which is really for the private advantage of two or three houses, should be repairable by the local authority. The want of a similar proviso in the Public Health Act 1875 has long been felt, and it was, no doubt, to remedy this deficiency that section 19 was inserted in the Amendment Act of 1890. The material parts of this section are as follows:—

Where two or more houses, belonging to different owners, are connected with a public sewer by a single private drain, an application may be made under section 41 of the Public Health Act 1875 (relating to complaints as to nuisances from drains), and the local authority may recover any expenses incurred by them in executing any works under the powers conferred on them by that section from the owners of the houses. . . . For the purposes of this section, the expression drain includes a drain used for the drainage of more than one building.

Now, the first point which strikes one about this section is that the houses must belong to different owners. One would have thought it would be an *a fortiori* case that, if the conduit carried the sewage of houses belonging to the same owner, it should not be regarded as a sewer so as to be repairable by the local authority. In the second place, we may ask what is meant by a single private drain or a public sewer, seeing that prior to 1890 no meaning had ever been attached to these expressions, and that they are not defined by this Act.

Cave, J., in *Hill v. Hair*, 1895, 1 Q.B. 911, suggested that this enactment was intended to meet the case of a drain for two or more buildings within the same curtilage. If this be the right explanation, the section is absolutely a dead letter, since it only re-enacts what was already the law. On the other hand, if "private" drain means a drain running through private land, it would include main sewers, which in many large towns are laid under private houses or buildings. The true interpretation of the section seems to be that by "public sewers" the Legislature referred to the main sewers as contrasted with those sewers which are merely connecting conduits between groups or blocks of houses and the main sewer. Such a connecting conduit is here described as a single private drain. This was the interpretation put upon the section by Wills, J., in *Self v. Hove Commissioners*, 1895, 1 Q.B. 689; but until the Act of 1890 has been interpreted by the Court of Appeal, it is impossible to feel any certainty on the point. In the meantime local authorities may evade the difficulty by compelling the owners of houses to provide *separate* drains from each house into the main sewer. This they have power to do under section 21 of the Public Health Act 1875.

Within the metropolitan area the distinction between drains and sewers is determined by the Metropolis Management Acts, and not by the Public Health Acts. The definition of a drain contained in the Metropolis Management Act 1855, which has been set out above, does not seem in every respect satisfactory. It will be observed that in order to come within that definition the drainage system of a group of houses must be executed *under the order of a Vestry or District Board*. Consequently, when a London builder constructs a conduit which drains two or more houses, either without the sanction of the Board or contrary to their directions, the conduit becomes a sewer, and the Board is saddled with the liability of keeping it in repair (see *Kershaw v. Taylor*, 1895, 2 Q.B. 271). The builder who thus disobeys the directions of the Board is liable under section 83 of the Act to a penalty of £10. This penalty is too small to be an adequate remedy, and, moreover, by the time the builder's misconduct has been discovered he is in many cases protected by the Statute of Limitations, or is not to be found. Whether, in the absence of evidence to the contrary, a conduit which drains a group of houses will be presumed to have been constructed under the order of a Vestry or District Board, so as to be a drain and not a sewer, is a point which has not as yet been decided.

**The Science Standing Committee :
Experimental Research.**

In connection with the Fund for Experimental Research the following report was presented to

the Science Standing Committee on Thursday, the 10th October :—

The Sub-Committee on Brickwork have to report that the experimental piers are now built, and that the first period of three months before testing will shortly elapse.

The site for testing is a piece of vacant ground immediately in front of the Engineer's Office at the West India Docks. The testing machine is to be placed in the centre of a temporary line of rails, upon which the experimental piers are built.

The rails are provided by the Dock Company, and laid upon sleepers bought of Messrs. Burt, Boulton & Haywood. The laying of the rails and ballasting was done by the Dock Company, as also the excavation necessary for the testing machine.

The bricks, lime, and sand are bought of Messrs. Cliff & Sons, and are the ordinary mercantile articles such as would be supplied to any builder. The Portland cement has been kindly given by Messrs. J. Bazley White & Brothers, Limited, and is of ordinary fine ground quality. Samples of the bricks have been tested by Professor Unwin.

The labour for building the piers was supplied by Messrs. Dove Brothers, and the piers were commenced on the 24th July and finished on the 13th August. The building was executed under the inspection and superintendence of Max Clarke, Francis Hooper, and William C. Street, members of the Science Committee, and a record of progress was kept so that the age of each pier at the time of testing can be ascertained. The piers on one side of the testing machine are in cement mortar, and those on the other side in lime mortar.

Sir William Arrol's firm have just finished the hydraulic testing machine. It is now on its way to the docks, where it will be erected immediately on arrival.

Professor Unwin, F.R.S., Vice-Chairman of the Committee, has kindly undertaken to test the machine previous to its use, to ascertain the coefficient for friction, so that the pressures may be registered as correctly as possible.

It is proposed to commence the tests of the first set of piers about the end of the present month, and due notice will be sent to the members of the Science Committee, so that they may be present should they so desire.

(Signed) WILLIAM C. STREET } Reporters.
MAX CLARKE

8th October 1895.

It is hoped that those of the members of the Institute who have not yet contributed to the Experimental Research Fund will send in their names to The Secretary R.I.B.A. with the amount of their subscriptions. The money already subscribed is now nearly all expended, and more is

needed to defray the further cost of these experiments.

The Works of the Roman Marble Masons from the Twelfth to the Fourteenth Century.

From JOHN HERB [F].—

Among the most important monuments of the Middle Ages are the churches, pulpits, monstrosities, episcopal thrones, reredoses, tombs, &c., of the Cosmateschi, so called from the name of a member of one of the principal families of marble-masons in the thirteenth century. These works, which are mostly of Grecian marble, with inlays of red porphyry, or green serpentine enriched with mosaics, with gold tesserae and azure and scarlet enamel, have engaged the attention of numerous archaeologists and artists, commencing with Promis and terminating with Gregorovius, Camillo Boito, G. B. de' Rossi, Stevenson, Marucci, Frothingham, and Giacomo Boni.

With a view to the further study of these interesting remains, Signor Romualdo Moseconi, an eminent Roman photographer, has published a series of photographic illustrations of all the works of this description in the Romagna, the Abruzzi, Umbria, and the Campania, which will enable the student to compare them with the Arabian-Norman decoration of Ziza in the Capella Palatina, and the tomb of King Roger at Palermo, as well as the monuments of Monreale and Cephalonia, to which they have a strong artistic resemblance. It is also possible to compare them with the tomb of the daughter of Henry III. and the Shrine of Edward the Confessor (which bears the signature of a certain *Petrus romanus civis*, and the date 1279), as well as the tomb erected in 1281 to the memory of Henry III. in Westminster Abbey, and the pavement of *opus alexandrinum* in the same cathedral and at Canterbury, which show the influence of the grand school of Roman marble-masons which became dispersed and extinguished during the dark ages of the papal exile at Avignon.

In the genealogy of the principal families of marble-masons as now recognised, the oldest had at its head one Paolo, who in the early part of the thirteenth century executed the pyx or ciborium in the cathedral of Ferentino, and the mosaic pavement in the choir of the old basilica of St. Peter at Rome. The sons of Paolo the mason were Giovanni, Angelo, Pietro, and Sassone, who carried out the ciborium in the basilica of San Lorenzo fuori le Mura, and in the year 1154 the ciborium of San Marco and of Santa Croce in Gerusalemme, both of which are lost. Angelo had a son named Nicholas, who, towards the end of the twelfth century, in conjunction with a certain Vassalletto, executed the famous Paschal candlestick in the basilica of San Paolo fuori le Mura.

Another family of masons was named Ranieri or Ranuccio, who designed the two-light window

in the convent of San Silvestro in Capite, and whose sons Pietro and Nicollò worked on the doorway and the two-light window adorned with porphyry mosaic in the old cathedral of Santa Maria di Castello at Corneto (Tarquinii). Nicollò had two sons, Giovanni and Guido, who in 1168 carved the ciborium in the same building at Corneto, where a son of Guido, named Giovanni, like his uncle, executed, in 1209, the beautiful marble pulpit adorned with gold mosaic and multi-coloured enamel, which still exists.

Pietro Bassalletto designed, with the son of Vassalletto, the Lateran cloister which may take a place beside the cloister of St. Paul and the abbey, near Foligno, which last was erected in 1229 by a certain *Magister Petrus de Maria, romano opere et mastria*. Another Vassalletto, in 1293, carved the bishop's throne at Sant' Andrea di Anagni, and another member of the family put his name to the mason's work at Sant' Apollinare, which is now in the studio of the painter Villegas, beyond the Porta Salaria.

But the greatest of all was the family of Lorenzo, the mason who, with his son Giacomo, erected in the twelfth century the front of the cathedral of Civita Castellana, the church of Santa Maria di Falleri, and the magnificent pulpit in the church of the Ara-coeli. Giacomo had a son named Cosma, from whose name is derived the term *cosmatesche*, or *cosmati*, which is commonly applied to the works of the Roman masons. Giacomo and his son Cosma erected the porch in front of the cathedral of Civita Castellana in 1210, and in 1218 the front of the church of San Tomasso in Formis, of the Order of the Trinitari. Cosma executed in 1224 the pavement of the cathedral of Anagni, and, with his sons Giacomo and Luca, the crypt of San Magno in the same city, and in 1231 the cloister of Santa Scolastica at Subiaco. A second Cosma built in 1277 the chapel of the Scala Santa at San Giovanni in Fonte, and his son Deodato carved in 1294 the ciborium at Santa Maria in Cosmedin, and later a fine pointed arched ciborium, of which there are remains in the cloister of the Lateran.

Among the works of Giovanni di Cosma still remaining at Rome are the tomb of Bishop Durand in the church of the Minerva (1296), the tomb of Cardinal Gonsalvo at Santa Maria Maggiore (1299), the tomb of Stefano de' Surdi, chaplain to Boniface VIII. (about 1303), and others.

"Architecture for the Public" [Vol. II. pp. 633, 670].

From H. HEATHCOTE STATHAM [F].—

I think the difference between Professor Baldwin Brown and myself arises partly from the fact that we are using the words "evidence" and "knowledge" in rather different senses. When I wrote that we had no evidence of the existence of any wooden Doric columns, except a single remark of Pausanias as to having seen one such column,

I used the word "evidence" in what seems to me the correct meaning of the word—viz. testimony by someone as to something he has himself seen. I do not know why Professor Brown should have assumed that I was not acquainted with the find of the various types of Doric capital at the Heraion, and with Bötticher's deductions therefrom; I have, in fact, referred to the point in *Architecture for General Readers*, and mentioned the theory propounded by Bötticher as a probable explanation of the circumstances; an expression which I have modified for the second edition of the book, as I think, on consideration, that it goes too far. The theory which explains the existence of so many rather oddly assorted forms of Doric capital by the supposition that stone columns were inserted from time to time as the original wooden ones decayed is no doubt ingenious; but it is only an opinion, and cannot be termed "evidence." It is true, as a friend whose Greek is better preserved than my own has reminded me, that in Pausanias's sentence, "ἐν δὲ τῷ ὀπισθοδόμῳ ὄρνυς ὁ ἕτερος τῶν κίωνων ἐστὶ," ἕτερος with the article before it is always taken to mean "one of two things"—"one of the two columns in the 'opisthodomus is of oak'; and this seems no doubt to imply that two columns which one would have expected to find identical in material were not so. But, on the one hand, in the trenchant brevity of Pausanias it is difficult to be sure that we know exactly what his point was; and, on the other hand, it should certainly be remembered that the employment of columns of Doric, or any other Order, in the same temple, of totally different design, is foreign to all our experience and knowledge of the habit of Greek architects; that if it were so in this case, it must have been a most unusual thing to the eyes of Pausanias; and that if he took the trouble to mention that one column was of oak, he would surely also, since his attention was directed to the columns, have taken the trouble to mention so singular a fact as that the capitals were all different. It could hardly have escaped his notice.

I conclude, therefore, that the theory that stone columns, each of a different design, were one by one substituted for wooden ones in the Heraion as the latter decayed, although constituting a very ingenious comment on the statement of Pausanias, is a pure assumption, and assumes something so contrary to our general knowledge of Greek architecture that it can only be accepted as a theory with the greatest hesitation; as a conclusion resting only on conjecture, and inherently improbable. And even supposing it proved that the Heraion had a wooden colonnade originally, that would be no proof that the Doric column was originally a wooden feature; it would merely be the proof that the columns of that particular temple had, perhaps for some local or temporary reason, been made of wood; there would be nothing to show

that they were not themselves copies of stone ones. Then we are always confronted with the unquestionable fact that the oldest examples of marble or stone Doric columns are thicker and more bulky in proportion than those of the great period of Greek art. There is an exception in the order of one of the Selinonte temples, which shows a tall-proportioned column with a most unusual amount of diminution; but in general the tendency certainly is to thicker proportions as we go backward in time—a fact which is quite at variance with the probabilities of a wooden origin. There are probably no means of dating the Corinth temple now, but I think it is generally agreed that it is probably one of the oldest Doric remnants in existence, and I cannot imagine anything more unlike a wooden origin than the appearance and proportion of those columns.

As to the origin of mouldings, I think that to say we *know* that the roll moulding beneath the Egyptian cornice and up the angles of the pylons was originally a wooden rod is again going too far. But supposing we admit that, it is after all a peculiar form, standing almost alone; it does not in any way explain the contours of the Greek mouldings the origin of which I take to be purely æsthetic, and which are specially suitable for the material in which they were executed, as the very different contours of the Gothic mouldings are specially suitable for their material. We certainly have not the *origines* of the Greek mouldings in any wooden form, and whatever we may think as to the timber origin of the Doric entablature in its general aspect, I do not think the mouldings, in detail, suggest a wooden origin in the least, any more than those of Gothic architecture; nor can I see that it is in the least necessary to seek for any such origin. As soon as you chamfer off the sharp edge of a stone angle—an operation almost suggested by the practical desire to remove a sharp angle which is liable to chip—you get the first suggestion of moulding; from that to shaping the contour of the chamfer in a convex or concave form, for greater refinement of effect, is an easy and natural step; and, so far from being "un-stonelike," it is a treatment peculiarly suitable to stone, as I think every architect would feel.

Memorial to the late Heber Rimmer.

The friends of the late Heber Rimmer, the Institute Silver Medallist (drawings) 1891 and the Soane Medallist 1892, whose premature death occurred at Gibraltar a few months ago, are desirous of publishing, as a memorial, a small volume of his sketches with portrait, for private circulation. The number of illustrations will depend upon the amount of subscriptions promised, but it is hoped to give at least thirty plates. The price of the book will be 10s. 6d. Intending subscribers should at once communicate with Mr. Edward Hodgkinson, 35, Pepper Street, Chester.



MINUTES. I.

At the First General Meeting (Ordinary) of the Session 1895-96, held Monday, 4th November 1895, at 8 p.m., Mr. F. C. Penrose, F.R.S., *President*, in the Chair, with 26 Fellows (including 9 members of the Council), 27 Associates, 1 Hon. Associate, and several visitors, the Minutes of the Meeting held 8th July 1895 [Vol. II. p. 596] were taken as read, and signed as correct.*

The following candidates for membership, found by the Council to be eligible and qualified according to the Charter and By-laws, and admitted by them to candidature, were recommended for election, namely:—As FELLOWS, Harry William Roberts (Leicester); Charles Thomas Miles (Bournemouth); George Hubbard [A.] (*Qualified as Associate* 1894); Herbert Osborn Cresswell [A.] (*Qualified as Associate* 1886); Herbert Huntly-Gordon [A.] (*Qualified as Associate* 1888). As ASSOCIATES, Frederick William Petter (*Qualified* 1895) (Barnstaple); Charles Kay Mayor (*Qualified* 1895) (Manchester); Cecil Alexander Sharp (*Qualified* 1895); Herbert Story (*Qualified* 1895) (Birkenhead); William Hawke (*Qualified* 1894); Edward Greenop (*Qualified* 1895); Francis Edward Morris (*Qualified* 1895) (Reading); Percy Leeds (*Probationer* 1892, *Qualified* 1895); George Gilbert Irvine (*Qualified* 1894); Harry Hutt (*Qualified* 1895) (Reading); Harry Garnham Watkins (*Probationer* 1891, *Student* 1893, *Qualified* 1895) (Lincoln); Robert Saxton Besant (*Qualified* 1895); Alfred John Dunn (*Qualified* 1895, *Pugin Student* 1895) (Birmingham); James Alfred Ernest Lofthouse (*Qualified* 1895) (Middlesbrough); George Cowan (*Qualified* 1895) (Southsea); George John Thrift Reavell (*Qualified* 1895); William Charles Waymouth (*Probationer* 1889, *Student* 1891, *Arthur Cates A.A. Scholar* 1892, *Qualified* 1895); Christopher Mitchell Shiner (*Qualified* 1895); Frank Brookhouse Dunkerley (*Probationer* 1889, *Student* 1892, *Qualified* 1894) (Manchester); Stanley William Worth Delves (*Probationer* 1890, *Student* 1893, *Qualified* 1895) (Tunbridge Wells); Edward George Collins (*Qualified* 1895); Edward Penfold (*Qualified* 1895) (Reigate); Orlando Middleton (*Probationer* 1890, *Student* 1891, *Qualified* 1895) (Cheltenham); Robert Messenger (*Qualified* 1895); James Hewitson Shaw (*Qualified* 1895). As HON. FELLOWS, Edward Falkener (St. Clears); Sir Frederic Leighton [H.A.], Bart., P.R.A. (*Royal Gold Medallist* 1894). As HON. CORR. MEMBERS, Professor Victor Schröter (St. Petersburg); Hermann Josef Stübgen (Cologne); Friedrich Carl Heimann (Cologne).

The Opening Address of the Session having been delivered by the President, a vote of thanks, moved by Mr. Aston Webb, F.S.A., *Vice-President*, and seconded by Mr. W. D. Caröe [F.], M.A., F.S.A., was passed to him by acclamation, and briefly acknowledged.

* Mr. Lewis P. Crace [A.], writing on the 4th November to the Secretary R.I.B.A., states that several members, himself included, "voted unmistakably against" the amendment carried as a resolution at the close of the Special General Meeting of the 8th July; and that the amendment was erroneously described in the report as "carried unanimously." Had this been observed the statement on the last line of the report of that Meeting [Vol. II. p. 601], to the effect that the resolution was carried unanimously, would not have been printed; or the error would have been at once corrected had Mr. Lewis P. Crace notified it at the time. The Minutes [Vol. II. p. 596], however, were and are correct.

The proceedings having been thus brought to a close, the Meeting separated at 9.45 p.m.

PROCEEDINGS OF ALLIED SOCIETIES.

THE MANCHESTER SOCIETY.

Extracts from the Opening Address of the Session.
By John Holden [F.], President.

Delivered 1st October 1895.

The classes in architecture, which were specially arranged between the Committee of the Technical School and the Council of this Society, have not, I find, been attended as satisfactorily as I could wish. These classes cannot fail to be of great use to the students, especially to those who desire to take any position in the profession and to pass the examination necessary for that purpose; and while I do not advocate the system of cramming, which is bad in principle, still it is greatly to the advantage of the student that his energies should be directed into a proper channel, instead of being wasted on matters of comparatively little importance.

It would, I am sure, be a matter of regret to most of us if, from a want of proper support, these classes should be discontinued; and we must remember that there are so many subjects now thoroughly taught in the Technical School and its branches, and the classes are so largely attended as a rule, that it is hardly likely the Committee of Management will continue to deal with a subject specially for a few students only. As to the value of the instruction to be obtained at these schools, I think there can hardly be a doubt. We must remember that teaching is as much an art as architecture itself, and a person requires to be trained to it just as much as to any other profession. It is not every professional or business man who can satisfactorily impart a knowledge of his particular branch to a student, although he may be a master of his craft. This I have particularly noticed for many years, and I think you yourselves, if you will consider the subject, will agree with me.

At the same time I wish you not to misunderstand me, and to suppose that the Technical Schools, or any other similar establishment, can by themselves make either an architect or any other business man; this would be a mistake. These schools are a most valuable adjunct to all businesses which are taught in them, and the student will receive instruction in the theoretical and practical branches of his own particular craft which he cannot obtain at his employer's office or works. And it is the interest of the teachers to impart this knowledge to him.

The principals or employers nowadays are busy men, and have neither the time nor (in many cases) the inclination to sit down alongside a student and instruct him. Generally the youth is passed into the office or works, introduced to the notice of the chief clerk or foreman, and left in his charge and expected to make himself useful. He must then depend upon himself. If he pushes his way he may get instruction and assistance; if not, he simply works out his time. In any event he obtains simply a knowledge of the business as carried out in that particular office or establishment—and we all know that no two offices are alike. All professions and businesses are divided into specialities, and none more so than our profession. It is, therefore, important that the student should, in addition to his ordinary office routine, pass part of his time in another place, where he will receive that instruction which he cannot obtain amidst the worry and bustle of a business establishment.

I speak strongly on this subject, as I wish not only the students but the older members to remember it, and to allow to their pupils the time to enable them to attend

these classes. I know that in a busy establishment there are times when all hands are required, but I ask you, the seniors, to discriminate between your pupils and your employés. Remember that the pupil comes to you for a certain purpose, and often, in fact generally, pays a large premium, and is therefore entitled to consideration—you are therefore under moral, and generally also legal, covenants to teach him his business as such is carried on in your establishment, and you are to a certain extent responsible for his future. This is an entirely different position from your relations with your employés or clerks, who are engaged to do your work, and to whom you are under no obligation as to teaching. I ask you, therefore, not only to allow your pupils the necessary time to attend the classes provided for them, but also to see that they do attend—in fact, to exercise that control and supervision over them which you would do over your own sons.

I confess that I should like to see more of our Manchester students entering themselves for the Royal Institute Examinations. There must be a very large number of pupils in the different offices in the city and suburbs, even those represented by this Society; yet very few put in an appearance. The Examinations have been brought to Manchester now many times, not without trouble, and have been conducted here at a very considerable expenditure of time on the part of a comparatively few members, yet I notice that very few of our Manchester students take advantage of them. If you examine the attendances at the Preliminary Examination—one in each year—you get the following figures:

1893. Nov. ...	9 candidates—None from Manchester
1894. March...16	" —3 " " all passed
1895. March...25	" —2 " " none passed

So that out of fifty students attending these Examinations only five were from the principal city, and but three passed. And I particularly notice that many of the smaller towns send up two or three students to each Examination, while a large and important city like Manchester, with its several hundred practising architects, can only provide three candidates at the most. There is surely something wrong here, and it is for us to find out the reason and rectify it.

In the Qualifying Examinations I find the same conditions existing, the proportion rather better, but the numbers small and the result poor. Taking the same three years the result is as follows:—

1893 ...	8 candidates attended—4 from Manchester—1 passed.
1894 ...	8 candidates attended—2 from Manchester—1 passed.
1895 ...	5 candidates attended—1 " (relegated)—1 passed.

These results cannot be satisfactory, and I must confess I do not understand it.

Another matter which has exercised my mind has been the use of the Library. The Library is not, of course, as yet a very large one, although it is increasing; still, it even now contains a considerable number of the best standard works; practically it contains all that is required for an ordinary student in architecture who wishes to pass the Examination. The register shows, however, that nothing like the use is made of it that the character of the books deserves.

Now, a word or two about the prizes given by the Society. I note that the small 10s. and 5s. prizes, which entail comparatively little labour or study on the part of the student, are taken up, but the larger prizes are either not competed for, or the responses are poor and unworthy of the sum to be awarded. One prize of £5. 5s. has not been awarded since 1891. The larger prizes, which are given on the recommendation of the Technical School Committee, I am pleased to say, remain this year in Manchester, and I have every reason to believe have been well earned.

This question of education is a serious one as affecting the profession, and also the Society, and I confess that I cannot understand it. I should be glad of any information which would assist the Council in dealing with it, and I invite communications from the students and others on the subject which may explain in any way the great lassitude and indifference which seem to run through the body of students. I am sure that the Council will carefully consider any such communications and, if possible, meet the difficulty and remedy the defects.

For some years past I have noticed the gradual decadence, I may say, of the study of Classic Architecture among the students; the more catching and sensational styles have been adopted and brought to the front. This is, I venture to think, a mistake on the students' part, as a thorough grounding in the principles of classic work is of the greatest use, and enables the student more easily to adopt other styles, which come up for a short time, and then, as it were, pass away. Understand, I do not complain of the use of these sensational productions, but I consider that they are not suitable as a basis for the education of the student. No doubt they suit the present taste of the public; but the impression is not lasting, and, to my mind, there is a want of boldness which detracts from the dignity of the building. The use of large quantities of surface ornament in low relief, and of small and thin mouldings, attracts attention to parts of the building, but not to the building as a whole.

This Society has for many years offered a prize for some subject in connection with Classic Architecture, but of late years the response has not been at all satisfactory, and for the last three years the prize has not been awarded. I hope that it will be responded to this year in a more satisfactory manner. I feel bound, however, to say here that I do not personally agree with the withholding of a prize when there is any response to it. When it is once offered I consider that it belongs to the students, and that it should be awarded (unless, of course, the response is a burlesque). The work of a student should not be criticised in the same manner, or with the same strictness, as that of a body of experts in a competition for a building. The object of giving prizes for competition by students is to encourage them to read and work in their own time, and to obtain information which will be useful to them afterwards, and to withhold the prize disheartens the student and possibly prevents him from trying a second time. I do not know of anything which would sooner discourage a youth who has done his best in tackling a subject of which others have fought shy than to be simply told that his production was not of sufficient merit. Strictly speaking, I am well aware that the work produced by most of the students is not in a commercial sense worth the amount of the prize, but that is not, in my opinion, the question. The prizes are offered for the purpose of encouraging the youths to study and to work in their own time, by which means they will gain knowledge and experience, and will also, by contact with others, gauge their own abilities; and personally, if I can induce the student to read and think, and to place his thoughts on paper, I should feel that the money had not been wasted. Every care should be taken not to discourage a student at the commencement of his career, and I hope that those who have to examine the productions of the students during the coming session will bear this in mind.

There is one other matter to which I wish to refer shortly, viz. the question of competitions. Unfortunately this seems to be a standing complaint which comes before us each year, with its record of improper conditions imposed by committees, unjust decisions, and consequently time and money wasted in preparing drawings, and the remedy seems to be as far off as ever. Certainly, when I read some of the conditions now imposed, it is a matter of surprise to me that architects

will compete. Amongst the conditions we find such as these:—

That the Committee does not bind itself to employ any of the competing Architects to carry out the work.

That the whole of the premiated drawings (however small the premiums may be) shall become the absolute property of the Committee.

Then the accommodation required is given (generally much in excess of what may reasonably be expected for the amount proposed to be expended), and the amount to be expended also fixed. The result of the last condition very often is, that the architect is landed in a difficulty when he endeavours to obtain tenders, and the work passes into the hands of some other person at the option of the committee.

So far as the work is concerned the professional assessors are at times ignored, the committee not being under any obligation to carry out their selection. The premium may be paid in accordance with their award, but the work goes to someone else who may have friends on the board. This course acts very hardly on the striving architect who may have endeavoured faithfully to conform to the instructions. The carrying out of the work is, of course, the real object of the competitor so far as he is concerned, as the premium in all probability will only about pay costs out of pocket, and sometimes not even that.

The question is a very difficult one to deal with, especially so long as architects of position can be found ready and willing to enter into competitions on almost any terms. If leading architects would refuse to compete excepting on fair and proper conditions there might be some chance of obtaining better conditions; but until this is done, I really cannot see any way out of the difficulty.

Hygienic Ventilation. By John Le Marchant Bishop.

Read before the Manchester Society of Architects, 1st October 1895.

The ventilation of enclosed places of assembly is, as yet, both in theory and in practice, a thing of immature development, at least in this country. In *theory* it is commonly assumed to consist simply in the removal of floating impurities, by the ingress of fresh air currents, in such a manner as to protect the persons assembled from the draughts caused by those currents. This view of the case prevails extensively, not amongst the general public merely, but also amongst those whose professional or business education and experience should be expected to ensure a sound and mature acquaintance with this subject. In *practice* this protection from draughts is usually effected by the diversion of the currents from that part of the room occupied by the persons assembled. That both the theory and the practice, as stated, result from narrow and partial views of the subject it will not be difficult to show. As to the necessity for the removal of the floating impurities by the ingress of fresh air currents there can be no question. It is, or should be, the primary object of ventilation everywhere, under all conditions, whatever the methods employed.

Scarcely less important is the protection of the persons assembled from cold draughts caused by those currents, especially to those who, whether from coddling or enervating habits, ill health, constitutional debility, infirm old age, or other causes, have but feeble resisting power, and are morbidly sensitive to climatic and atmospheric changes. These points are so obvious as to preclude discussion. But here the truth, or at least the obvious truth, of the assumption ends, as I shall hope to show in the following brief critique on the theory and practice in question.

I. THE THEORY OF VENTILATION.

It cannot be too distinctly borne in mind that true ventilation is purely and simply an hygienic matter, in which

mere trade interests in, or mechanical exigencies of, particular schemes or devices, or even architectural mandates, can have no consideration, except and in so far as they conform to the laws and subserve the objects of practical hygiene. The real question to be considered here is, By what mechanical arrangements may the best and completest protection be ensured to the health from the disadvantages and risks incident to the assemblage of numbers of persons within a restricted enclosed area? This proposition is direct, intelligible, and exhaustive, and, as against it, all mere questions as to the natural or the mechanical principle, the upward or the downward method, the expulsion or the indraught process, and the like, become subordinate, and, so far from embodying hard-and-fast principles of arrangement to the exclusion of others, may be mere questions of detail. Either may be right and useful in its own way and for special purposes; conversely, either may be wrong in other cases and for other purposes. Trade cant and claptrap are surely out of place here. The primary consideration, kept steadily in view, should suffice to determine, in any particular case, which of those arrangements or methods, or what combinations of them, would best subserve the practical end.

Upon hygienic principles the first desideratum in the usual methods of ventilation is, that pure fresh air be brought freely and directly in contact with the persons assembled, instead of being diverted from them. Surely this is too manifest to need urging. To divert the fresh air away from those for whose express and exclusive benefit it is admitted, often at considerable cost, is a procedure that for inconsistency could scarcely be surpassed; and it is self-evident that, if this be the only possible method of affording protection from draughts, then true hygienic ventilation is an impracticable and impossible achievement.

Another essential condition of ventilation on hygienic principles, not less manifest than the last named, yet as commonly overlooked, is that such ventilation be *continuous* as well as thorough, no less when the room is unoccupied than when occupied. While it is true that the atmosphere of a room becomes much more rapidly vitiated when people are assembled in it than at other times, it is not less true that, upon any system of ventilation whatever, only a portion of the impurities thrown into the room is carried away, and that that which remains is the most pernicious of the whole. The organic particles given off from the lungs, however trivial in the case of a single individual, become a very serious aggregate amongst a crowd of persons shut up for hours in a room inadequately or imperfectly ventilated. Such of them as get into the sweep of the currents passing through the room are, of course, carried away, or most of them; but the rest remain floating about those parts of the room out of reach of the currents, until, coming in contact with the walls, ceiling, furniture, and other exposed objects, the highly viscous surfaces of those particles fix them immovably thereto, to decompose and putrefy at leisure. Now, considering that this accumulation is constant; that the particles, highly poisonous when first given off from the body, become more so as putrefaction advances; that those from persons suffering from communicable diseases contain the germs of such diseases; and that only a continuous and adequate supply of fresh oxygen can effectually destroy this ever-increasing and perilous mass of corruption, the insanitary condition of such rooms may be more easily accounted for than adequately realised. The sickening odours of their atmosphere, especially those which have been long in use, when shut up from the action of fresh air currents arise, not from the presence merely of carbon dioxide, but from the vile exhalations of an unceasing accumulation of putrid matter.

Nothing, then, can be more manifest than that any system of ventilation established upon true hygienic lines

must embody an arrangement for a practically continuous and adequate supply of fresh air to the room at all times, so that every inch of the air space, and every accessible object within it, may be constantly subjected to the chemical action of the fresh oxygen contained therein, by which alone the organic matters, whether floating or fixed, can be quickly removed, or reduced to innocuous forms. How is this to be done? For answer we must consider the subject from its practical side.

II. THE PRACTICE OF VENTILATION.

We have already observed that upon ordinary methods of ventilation immunity from draughts is usually sought in the diversion of the currents away from the persons assembled—i.e. by directing them *above their heads*—the objection to which is that that part of the room most in need of careful and direct ventilation, the part occupied by the assembly, is left unventilated, in the only true sense of the term.

It is usual to urge, in defence of this procedure, that the exhalations from the body "naturally ascend," and are therefore caught up by the overhead currents and carried away. This, however, is but partly true, and does not meet the point. Not to mention the fact that a stream of air passing through an occupied room is necessarily of much smaller dimensions than the air space of such room, and, therefore, that many of the exhalations may pass freely about the room without coming within the sweep of the current, the notion is founded upon an error in pneumatics, being directly at variance with the laws of the expansion and diffusion of gases, in virtue of which all gases, whether light or heavy, when not distracted by other and superior forces, tend, not to ascend merely, but to spread themselves equally in all directions and to intermingle with one another. Thus, a cubic foot of air passed into a large exhausted chamber would not ascend merely, nor retain its one-foot volume, but would expand in every direction and occupy every part of the air space in the chamber. Further, if a foot of gas, say carbon dioxide, were then also passed into the chamber, this would no longer retain its volume of one foot, but would, although heavier than the air, also expand in all directions, intermingling freely with the air, and in conjunction with it occupying all parts of the air space of the chamber.

Gases, however, in common with all material things, are subject to the force of gravity. Hence it is true that a stream of warm air passed into a cooler atmosphere, or medium, *will ascend*, not because it is warm, but because, being rarefied by heat, its specific gravity is less than that of the medium, the superior weight and density of which force the warm air upward. As soon as its specific gravity is increased by the exhaustion of its heat to that of the medium, however, the law of diffusion, partially suspended by the heat of the stream, will reassert itself, and a general expansion and diffusion will take place. Hence it follows that warm gases passed into a cooler medium will ascend with a degree of energy proportionate to the difference between the two temperatures; so that, if the gas be only slightly warmer than the medium, their specific gravities being nearly equal, its ascent will be proportionately feeble and restricted. The importance of this fact in relation to the practice of heating rooms, or supplying them with heated air, in its bearing upon the present question will be apparent. In proportion to the warmth of the general atmosphere of the room, the exhalations, which, at the same temperature, are generally heavier than pure air, will be subject to the laws both of diffusion and of gravity, and, so far from ascending, will intermingle with the medium with a general downward tendency.

There is another common error in practical ventilation, founded on a curious oversight, yet generally accepted as sound doctrine, both by professional men and the public. A current of air passed through a room until its entire

volume would, if collected and retained within the room, suffice to fill the air space of the room is held to have "changed the atmosphere," i.e. to have turned out the whole of the atmosphere and taken its place; whereas by far the greater part of the current entering by the inlet has escaped through the outlets, and, so far from "changing" the air of the room, has, in many cases, failed even to reach the greater portion of it. It is solely upon the authority of this extraordinary assumption that ventilating engineers and firms claim, by the aid of their mechanical appliances, some of them of the loosest and most inadequate description, to "change the air of a room" a given number of times an hour. As a matter of fact, the first and chief effect of the passage of a stream of air through a room, as stated, would be, if colder than the medium, or if passed under pressure, whether cold or warm, to displace the air in that portion of the air space through which it travelled, but not to replace the air generally, since the stream is constantly passing outward, forcing its way *through* the medium towards the outlet. It would, of course, carry with it some portion of the air within its sweep, and more or less agitate the remainder. But partial displacement is a widely different thing from general replacement, as is agitation from purification; and the complete mechanical changing or replacement of the air of a room, if at all practicable by such means, is necessarily a much slower and more difficult process, especially in an occupied room, than is generally supposed. Such a claim seems to wholly ignore the very wide distinction between the physical conditions of a room already filled with air and those of an exhausted chamber.

The elementary physical facts above stated, if generally known, are strangely lost sight of in their application to ventilation, and in much of the trade literature on the subject are systematically kept in the background, or suppressed altogether. They show plainly enough, however, the erroneousness of the notion that a crowded room may be ventilated, even with a moderate degree of success, by means of overhead currents, or that a room used for any purposes of assembly may be kept pure and healthy without a continuous, adequate, and general distribution of fresh air. Hence I repeat that *true hygienic ventilation of such rooms is impossible without a free, direct, and practically continuous circulation of pure fresh air through all parts of the air space.*

But is such ventilation practicable? I submit that it is, though only in one way—namely, by the combined processes of diffusion and distribution. Both the diffusion and the distribution must, however, be complete and thorough. It is one thing, a very simple thing, to diffuse the air currents; it is quite a different matter to distribute the fresh air uniformly, completely, and continuously in a diffused form through all parts of the air space. Obviously this can only be effected by means of a very carefully devised arrangement of suitably constructed inlets and outlets. No rule-of-thumb or haphazard venture will achieve it. The outlets must bear a definite relation to the inlets in point of numbers, areas, and situation, and both inlets and outlets to the plan and dimensions of the room, and those in operation to the numbers of persons assembled; in short, to the work required to be done. Further, both the inlets and the outlets must be carefully guarded with suitable valves, otherwise much of the air will be diverted and wasted, and much of the work rendered futile by leakage. In a word, it is only by dint of very careful and judicious mechanical arrangements that the air currents could be both diffused and distributed in a manner to constitute what alone could properly be designated true hygienic ventilation.

Such an arrangement, then, would embrace a number of inlets placed at frequent and, as nearly as possible, equal intervals around the walls and about the pillars, &c., of

the room, disposed so as to direct the currents toward a central but extended area of the roof or ceiling, so as to gently sweep, instead of directly striking it. If all means of outlet in the upper parts were stopped, and of inlet other than those prescribed, the currents, intermingling about the ceiling, would gradually become diffused as they descended, and the further they descended, in the absence of outlets, the more complete would the diffusion become.

If, then, a like number of outlets, of suitable areas, were similarly arranged about the floor-line, the whole of the air must descend to the floor to find its exit. Thus the distribution as well as the diffusion would be mechanically complete, and the exhalations, participating in the general downward sweep, would be immediately carried away through the outlets, instead of rising into the body of the atmosphere. The diffused air would thus be brought freely about the occupants until, on approaching the floor, it resumed its current form, passing outwards unfelt, or felt only as warm currents at the lower extremities; since the air on leaving the room would generally be warmer than on entering it. No draughts would then be possible, a draught being but a current of air sufficiently cool or rapid to unduly extract the heat of the body or part of the body of the person attacked thereby. I can conceive no other principle of mechanical arrangement upon which true hygienic ventilation is possible, nor upon which the air of a room may be safely and surely "changed" with the uniformity, rapidity, and completeness necessary for dealing immediately and effectually with the ever-accumulating impurities of a crowded room.

For purifying and conditioning the air it must, of course, be passed through a central chamber; while, for the more complete control and regulation of its supply and distribution, a perforated shutter, or other convenient form of stop, might be fixed to each outlet and, where desirable, to the several distributing tubes. The outlets should in no case communicate directly with the open, but should be connected with a suitable exhaust carried directly to the top of the building, so as to discharge itself well above the roof.

In view of the necessity for a continuous supply of fresh air to places of assembly, the question of cost would seem to assume considerable practical importance, and to constitute, in many cases, a serious difficulty. This, however, would generally be found to be more apparent than real. In hospitals, workhouses, and the like, where, upon *any* system, power would be constantly needed, its cost would of course be inevitable. But in the case of places of worship or entertainment, schoolrooms, workrooms, and the like, which are unoccupied for longer or shorter periods at frequent intervals, power would be needed during the hours of assembly only.

For their ventilation during the periods of recess, the automatic operation of a well-devised system on the lines already suggested would generally be found sufficient. A series of projecting inlets or cowls might be constructed, and disposed at the outer corners and along the outer walls of a building near the roof, so as to catch the air currents simultaneously at several sides and corners, irrespective of the wind's course, such inlets being continued by tubes to a central chamber, situate, say, in the basement, whence the air would be conveyed to the room. Obviously the acquisition of the air by such means must be both larger and more continuous than by any similar number of inlets in the flat of a single wall; and if the inlet, carefully trapped, were assisted by a water-spray at the central chamber, and the exhaust by a few gas jets, a passage of air would be generally available sufficient to purify the room and keep it sweet and wholesome during the periods of recess without the aid of power; since, roughly speaking, the whole of the fresh air thus passed through the room, and not merely a small portion of it, would be utilised in all parts of the room, in virtue, on the one hand,

of the mechanical arrangements for its distribution, and, on the other hand, of the laws of diffusion, which in a quiet room operate with greater freedom and effectiveness, because less interrupted.

A word here on the automatic principle. Why has automatic ventilation invariably failed in practice? Not because the principle is unsound, for it is a principle of nature. No doubt the chief causes are common to ventilation schemes generally, but become more pronounced in relation to automatic ventilation. The following reasons alone would suffice to account for this general failure:—

1. Misconceptions concerning (a) the nature, scope, and objects of ventilation; (b) the various scientific and other conditions to be observed in dealing with it. Hence—
2. Practical errors, which may be roughly classified as follows: (a) Inadequacy and inappropriateness of the means and appliances employed; (b) want of precision in their design and construction or execution; (c) absence of system, or logical relation, in their various proportions, adjustments, and arrangements.

In a word, rule-of-thumb, blind speculation, and empiricism have hitherto been paramount in a sphere wherein the practical embodiment of philosophic thought following upon adequate scientific knowledge could alone be reasonably expected to succeed.

The essential distinction between mechanical and automatic ventilation is that in the former the currents are forced, while in the latter they are courted, coaxed, inveigled into the room. The principles determining the proper choice of either process in any given case are primarily hygienic, and secondarily economic. If pure fresh air sufficient for the hygienic needs of the occupants of a room be automatically unavailable, the only alternative is to force it into the room by the aid of power; otherwise the automatic process, being the less costly and troublesome, would take precedence. It follows that, for rooms in which recurring periods of assembly followed by more or less protracted intervals of recess necessitate the alternate use of both processes, no scheme of ventilation could be philosophically sound and complete that did not embrace the two in combination, with complete arrangements for their ready alternation at all times.

So far as the mere supply of air is concerned, mechanical ventilation is independent of conditions essential to the automatic process, a sufficiency of power being all that is requisite. The conditions necessary for effective automatic ventilation, as distinct from the mechanical, consist in the operation of certain natural forces, namely:—1. Wind. 2. Atmospheric pressure, arising from (a) the relative changes occurring between the temperatures of the internal and the external atmosphere, and (b) the natural elasticity of the air.

It is usual to ignore these last two forces in automatic ventilation, although, strangely enough, they are, especially the last, recognised and utilised in mechanical processes. The facts, however, remain that, apart from wind pressure, so long and so often as relative thermal changes occur between the two atmospheres, so long, so often, and in like proportions will substantive interchanges occur between them; and, further, that every movement of the air, however caused, involves, in a degree proportionate to the degree of its energy, a *compression* followed by a *rebound*, and these, again, by a succession of compressions and rebounds, in diminishing order, with corresponding substantive interchanges.

Now, admitting that the operation of these two forces and their consequent atmospheric interchanges are often so silent and undemonstrative as to be imperceptible to us, they are on that account none the less real. The most constant, beneficent, and indispensable of the forces of nature are often those whose operations are least demon-

strative and perceptible to the senses; and in the absence of wind pressure, but for the constant operation of these two forces of atmospheric pressure utter stagnation must ensue, which, in any protracted periods of calm, must deal out disease and death, and render our dwelling-houses and places of assembly wholly uninhabitable. So much, at least, do we owe to natural ventilation.

These two forces, then, constitute the *power* which Nature herself mainly employs for the ventilation of places only partially accessible to the action of the wind, and generally during the wind's absence; and it is obvious that, with a view to the efficiency of any automatic scheme of ventilation, the *mechanical* aids employed should be such alone as would enhance the practical utility of this power, seeing that for the purpose in question the supply both of the power and of its available material is restricted. Just as we economise steam, gas, electricity, and other media or forms of energy, employing every practicable device for enhancing their mechanical effects in the direction required, because, while practically unlimited *per se*, they are, as specialised power, restricted in their available supply either by physical or economic conditions, so in the same way, and for precisely the same reason, must we, if we would not stultify ourselves, employ the most philosophic means for economising and enhancing the natural utility of this power, which, while abundant in nature, is in its application to automatic ventilation restricted by the physical conditions attaching thereto.

There is nothing mysterious or involved, however, in the mechanism required for the achievement of the results suggested. But there are certain practical conditions which must be scrupulously observed throughout as guiding principles. These have in part been already referred to or hinted at, but their importance may well warrant their repetition, since to ignore any one of them were fatal to the success of any automatic scheme whatsoever.

1. *Accurate conceptions of the practical capabilities of the automatic principle.*—These may not, of course, be mathematically exact; but approximately accurate they must be, since to seriously overrate or underestimate them would alike be to ensure its failure in any case. We are all familiar with the appliance known as Tobin's Tube. There is a ready demonstration of the energy of which the automatic process is capable in its simplest form, without any mechanical aids, and independently of the wind's pressure. The constancy and much of the energy of its operation are due less to the action of the wind than to atmospheric pressure. Yet it in no way forces or coaxes, but merely *permits* the ingress of the air from outside; nor has it any provision for the diffusion, distribution, or discharge of its currents. It is but an inlet of the crudest kind—a mere hole in the wall, and nothing more. The work done by it, however, furnishes a rough but useful basis for estimating the natural capabilities of the automatic process.

2. *The interception of the wind's currents irrespectively of the wind's direction.*—We have seen how this may be effected. Obviously the areas and numbers of the inlets could be enlarged almost indefinitely, and the supply of fresh air from this source, when the wind is in motion, thus rendered practically unlimited.

3. *The acquisition of fresh air during the wind's repose.* The construction and fitting of the valves attached to each inlet and outlet here become a matter of the highest practical importance, since, in order to operate effectually, they must be sufficiently sensitive to respond to the slightest atmospheric movements, and sufficiently well fitted to prevent leakage. Few persons seem to have any adequate conception of the importance of this systematic arrangement of valves in automatic ventilation. No automatic scheme could be sound or complete without it, since upon its steady and continuous operation during the

wind's repose the constancy and efficiency of any such scheme must mainly depend.

4. *Economy.*—The whole tenor of our observations in this section uniformly emphasises the essential importance of economising both the motive power and the material of automatic ventilation, at least when the wind is feeble or quiet. Every foot of air once admitted should be pressed into actual service, and permitted to escape only when it has done its full share of the work of ventilation and purification. There is nothing chimerical in this. It means simply that the doors and windows shall be close fitted, the floor tight and sound, the ventilation appliances and their accessories properly constructed and adjusted. The admission and discharge of the air being thus respectively restricted to the prescribed inlets and outlets, its complete and uniform diffusion, distribution, and utility would be ensured.

It is obvious that by thus economising, distributing, and utilising the whole of the air passing through a room a greater amount of real and effective work might be obtained from it, even automatically, than from much larger quantities of air mechanically forced into the room at one or more points, only to pass out at others, leaving the air space occupied by the assembly untouched. Hence it follows that, upon the arrangement suggested, much *less power* would be required to efficiently ventilate a crowded room than upon any of the ordinary methods.

The withdrawal of the used air at the floor line is already much in practice. This, however, will not alone achieve the results here desiderated—the perfect diffusion and distribution of the air currents through all parts of the air space. The greatly increased number and aggregate area of inlets and outlets, suitably disposed about the interior and exterior of the building, and furnished with valves, regulators, and other appliances and arrangements, as suggested, with the complete and systematic co-operation of all the parts of the entire mechanical arrangement, are wholly indispensable to these results.

THE SHEFFIELD SOCIETY.

Extracts from the Opening Address of the Session.
By Charles Hadfield [F.R.S.], President.

Delivered 9th October 1895.

After a few preliminary remarks in reference to the rare and valuable collection of prints, engravings, and books lent for the occasion by Alderman Brittain and Messrs. B. Bagshawe and J. B. Mitchell-Withers, Mr. Hadfield congratulated the Society upon its increasing strength, briefly reviewed its past year's work, and continued:—

I do not wish, at a gathering like the present, to try the good nature of my audience, but I venture to ask their forbearance while I address a few words to the younger members of the Society, who have one day to occupy our places, lead the architectural opinion, and supervise the building work of this important and growing city. In the first place, I would urge them in all their pursuits to aim at a lofty ideal, ever to bear in mind the position and responsibilities they may have one day to bear, and, by making use in the heyday of youth of the advantages they come across, to qualify themselves for the part they have to fill. The word "architect," derived from the Greek, signifies a chief artificer or constructor. In the records of early Christian times, and notably in those of the close of the twelfth to the sixteenth century, the architect is generally styled "the Master" (*magister operum*), or Master Mason. I may instance Anthemius and Isidorus, both architects or engineers employed by the Emperor Justinian during the erection of the great church of St. Sophia at Constantinople in the sixth century. Master Wilars d'Honecourt, a facsimile of whose album or sketch-

book is exhibited to-night, was another of these men. The original manuscript, of thirteenth-century date, is preserved in the Bibliothèque Nationale, Paris, numbered "S. G. Latin 1104." He appears to have been extensively employed in various parts of France, and even Hungary, and informs his readers that he had travelled in many lands, and writes:—

Wilars de Honecort salutes you, and implores all who labour at the different kinds of work contained in this book to pray for his soul, and hold him in remembrance. For in this book may be found good help to the knowledge of the great power of masonry and of devices of carpentry. It also shows the power of the art of delineation, the outlines being regulated and taught in accordance with geometry.

Master William of Sens, a Frenchman, who was retained by the monks of Canterbury to rebuild the choir of their cathedral after the disastrous fire in 1174, and his successor, Master William the Englishman, may also be instanced: and in France, during the thirteenth century, Robert de Luzarches, and after him Thomas de Cormont and his son Regnault, were engaged at the cathedral of Amiens, and Pierre de Montreuil at the Sainte-Chapelle and other thirteenth-century churches in Paris. In the cathedral of Rheims, on an incised slab, is the effigy of Hugues Libergier, with his measuring-rod and compass, and an inscription recording the erection of the church under his direction in the year 1239. These men, all laymen, were probably in much the same position as the modern resident engineer.

France, from the days of Charlemagne to our own, has been a great centre of the building art, and most of the old trade customs are yet in force. The architect there, being the chief director and thinker in building operations, is closely in touch with the artists and craftsmen engaged, and by his position keeps at arm's length the self-styled specialist, who in the United States and this country is allowed, mainly by the apathy or want of knowledge of some architects, to elbow them out of their legitimate sphere of authority. A French architect does not think any detail of his building too small for attention, and modern French work, unlike a good deal of contemporary English work, bears comparatively few marks of detail culled from trade catalogues. It is artistic and thorough all through, from basement to roof-tree.

Vitruvius lays down that an architect should be ingenious and apt in the acquisition of knowledge. He should be a good writer, a skilful draughtsman, versed in geometry and optics, expert at figures, acquainted with history, somewhat of a musician, and not ignorant of the sciences, both of law and physics. These ideas of Vitruvius clearly point to the exalted and responsible position of the architects of antiquity, and there is no doubt that in the fifteenth, sixteenth, seventeenth, and eighteenth centuries men such as Brunellesco, Alberti, Bramante, Peruzzi, Michelangelo, Palladio, and Vignola in Italy, Lepautre and others in France, and our own Inigo Jones, Wren, Vanbrugh, and the like, lived up to much the same high standard.

The present is an age of marvellously advanced draughtsmanship and severe competitive examinations in every calling; but while urging the young architect to fit himself by study for passing through such an ordeal as the Examinations of the Royal Institute, let me remind him that brilliant draughtsmanship and the passing of examinations are but a means to an end, and will not necessarily make a man into a good architect. I have examined the drawings of some of the above-mentioned masters, and doubt if any of them would have passed muster at a South Kensington Science and Art Examination in freehand or building construction; nevertheless their authors immortalised themselves for all time by their works in marble, stone, and brick. They were workers and students to the end of their lives, and I hold them up as your pattern.

You have well-organised classes for sketching and the measurement of old buildings, for land surveying, for historical study, the first and last named under a leader whose achievement in measuring and delineating the north transept of Lincoln Cathedral brought him the well-earned and coveted distinction of the Royal Institute Silver Medal some two years ago.* Let me suggest also for your consideration a work that ought to be no longer delayed—*i.e.*, that of carefully drawing and measuring old local buildings, and any architectural detail of interest they may happen to contain, with a view of issuing the drawings in book form to subscribers. This has been successfully done elsewhere. The German Societies of Architects make it one of their chief duties, and issue complete records of the buildings in their own immediate district. The Sheffield Guild of Arts and Crafts, through its President, Mr. C. Green, has already drawn attention in the press to the lamentable destruction that has been going on and must necessarily continue to take place in this city of much that is worthy of record. Let us join hands with them before it is too late. There is now, at the eleventh hour, plenty of material to work on, and in gathering it in you will be garnering rich stores of old decorative and building types, and at the same time cultivating your designing faculties.

I should like to see more use made by young architects of the admirable classes for the study of geometry, strengths and testing of materials, carpentry, and the like at the Sheffield Technical School, where practical knowledge may be gained from practical men. This kind of training, and the inspection, setting out, and study of building work, whether in the builder's workshop or on the actual building, is invaluable.

A Frenchman thinks far more about the charm which his imaginative faculty teaches him to impart to his work, and its inherent character and interest, than of all the wretched shibboleths about historic styles we are eternally proclaiming in this country and in America. Cannot we, once for all, relegate to the shades of oblivion the regulation phraseology of the day as to our buildings being designed in "Free Classic," "Early Gothic" freely treated, or "English Renaissance"; or as to Mr. Jones being a Classic and his rival, Green, a Gothic man? To the architect who has learned the grammar of his art the whole thing should be exquisitely absurd.

Let the young architect in his hours of recreation go into the fields and woods with his colour-box and sketch-block, or scour the hills and dales of England, and he will find plenty of material to enable him to invest his own efforts with something of the charm and character that were inseparable from all periods of our old English architecture. When he has to undertake a building, after having carefully ascertained the wants of his client, and laid down the plan and general lines, such a course of study will tend to strengthen his faculty for original and artistic design.

This is a commercial age, and an architect must train himself up to habits of system, hard work, and punctuality in his appointments. We have heard it asked lately if "Architecture be a profession or an art?" but there is little good, I am convinced, to be gained by a parade of high artistic to the exclusion of commercial or professional ability, or *vice versa*. The British public, as a rule, are quite shrewd enough to read between the lines, nor are they likely to value such attempts at transparent self-advertisement one whit more than those of the architect who, posing as a sanitary specialist, adorns the front of his building with ventilating pipes and other interesting sanitary requirements, which a little trouble or forethought might have relegated to a less obtrusive position without injury to efficient working.

* Mr. J. R. Wigfull [A.].

